

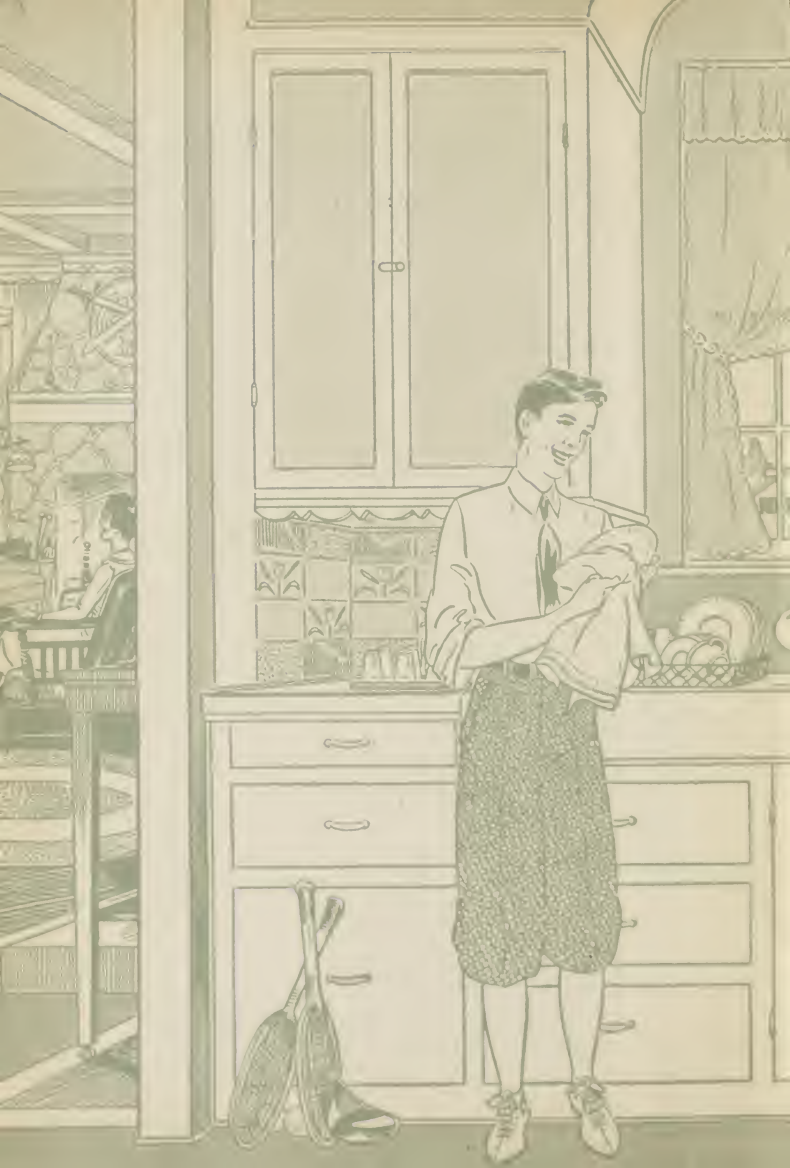
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FOODS AND HOME MAKING



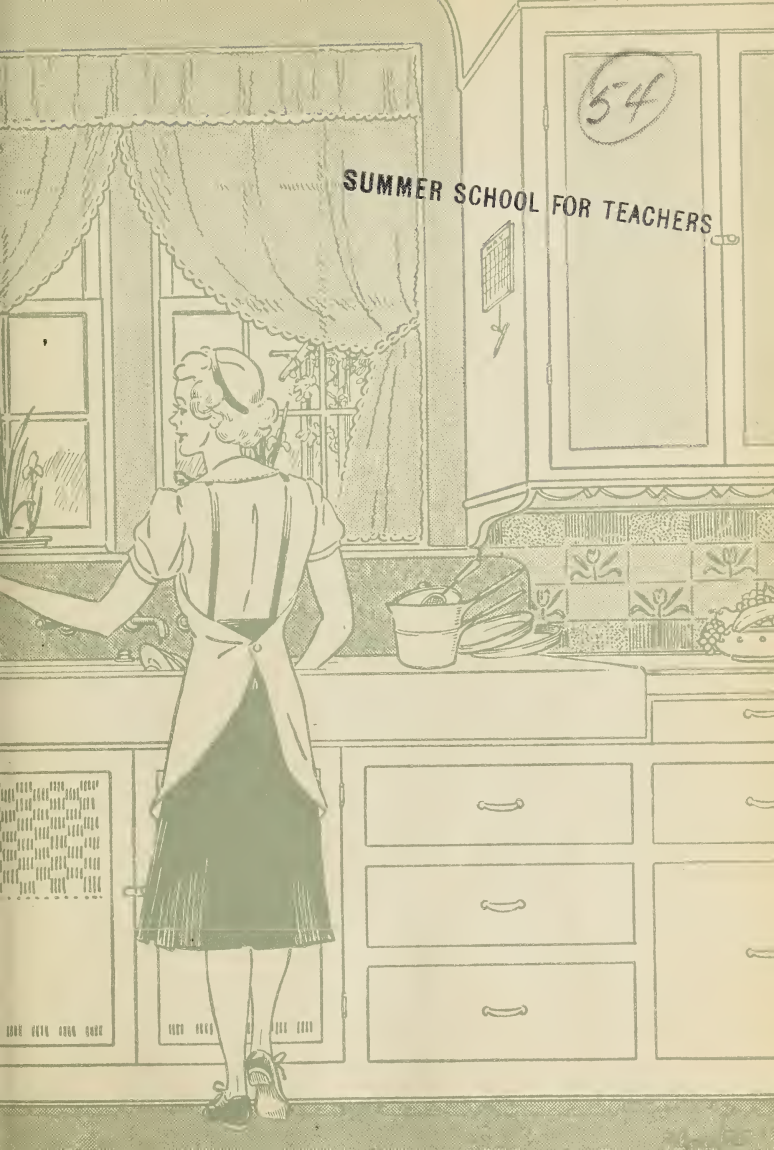
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CARLOTTA C. GREER



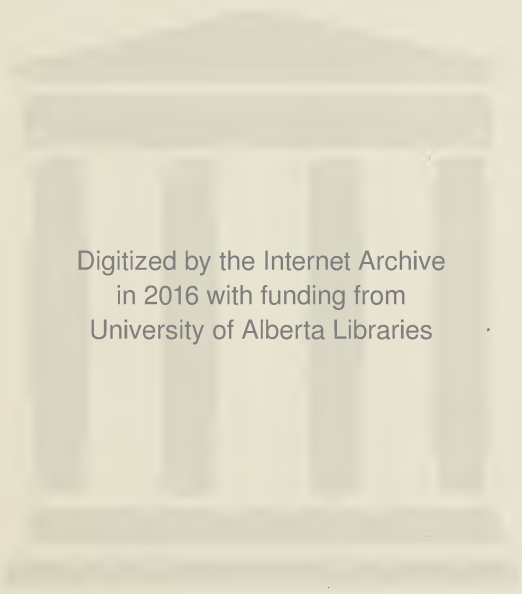
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SUMMER SCHOOL FOR TEACHERS



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A CHEERFUL KITCHEN AND TASTY FOOD

FOODS AND HOME MAKING

BY

CARLOTTA C. GREER

HEAD OF THE DEPARTMENT OF HOME ECONOMICS
JOHN HAY HIGH SCHOOL, CLEVELAND

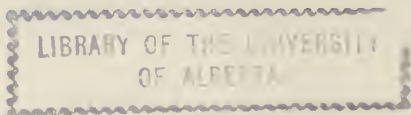
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TO THE TEACHER

It has been taken for granted that youth would learn without instruction many of the commonplaces of living. Experience and observation have shown that many pupils fail to do well the things they must do every day. Training them *to do better the important things they are now doing or are going to do is effective education.*

Research about the activities of boys and girls shows that *going to the store* is one of the most frequent. Young persons should be armed with information so that they may get good value for the money they spend. Detailed directions for buying not only fruits, vegetables, meats, and other foods but also dishes, glassware, utensils, table linen, and silver are contained in this text. Moreover, some fundamental principles of buying as well as the ethics of buying are discussed. A glance at the index shows how many items are listed under the topic *buying*.

Other home activities shown by recent investigation to be performed most frequently by pupils are *setting the table, washing dishes, and helping to cook meals*. These subjects are all included in this book. Even the commonplaces of dishwashing have been vitalized by arranging pertinent material in the form of a contest. Interest is stimulated further by showing the relation of dishwashing to health.

Not only should pupils be taught how better to do important things, but *additional interests and activities should be revealed and made desirable to them*. In *Foods and Home Making* are included many suggestions and devices to stimulate pupils to participate in *home* activities and to do their share in making their

homes attractive and happy. *Definiteness in directions for work, carefully planned home work, and arrangements for getting school credit for home work* make the activities suggested in the text readily attractive to the pupils.

Since health education has been generally accepted as a necessary preparation for everyday living, many terse rules for maintaining health have been formulated. In every set of health rules, the selection of wholesome food is emphasized. *Selection of food* from the standpoint of health is constantly urged in this text. Moreover, in the chapter *Keeping Well* other health practices besides food selection are included. Chapters on *child care* also form a part of this unit.

In modern educational circles it is thought that methods which merely inform pupils but do not stimulate to activity are ineffective. Throughout the text, *workable devices* are suggested whereby pupils may put into practice the activities about which they learn.

In this book effort has been made to organize facts and express them in *sufficient detail* so that young persons will be interested and will comprehend its contents. Only approved classroom procedures and tested recipes are given.

The *experiments* are so arranged that only a minimum of time is required to record the results of experimenting. Terse answers to questions pertaining to the important points of an experiment are recorded. This concise method makes it necessary for a pupil to reflect understandingly upon the results of manipulation.

Illustrations with explanatory *legends* are used as teaching devices in this book. The popularity of the moving pictures has contributed to the educational effectiveness of illustrations with descriptive legends.

Each chapter is introduced by *stimulating questions* and concluded by *review questions*. The latter include both subjective and the newer objective type of question. Each section

is also introduced by a question. These questions may be used by pupils as study aids in testing themselves for mastery of topics.

Much of the material of *Foods and Home Making* is suitable for *boys* as well as girls. Knowledge of food selection is necessary for boys. Stimulation of boys' interest in home making contributes to their appreciation of home life.

C. C. G.

ACKNOWLEDGMENTS

To the individuals, educational institutions, publishers, and business firms who have contributed illustrative material for this book, thanks are given. The names of contributors are stated in the legends accompanying the illustrations. Thanks are given also to Miss Adelaide Van Duzer, formerly Supervisor of Home Economics, Cleveland, for suggestions regarding the material on child care; to the Home-Room Committee, East Technical High School, Cleveland, for suggestions regarding a time budget for pupils; to Miss Viola M. Bell, Associate Professor of Foods and Nutrition, Iowa State College; to Miss Inez Willson, Department of Home Economics, National Live Stock and Meat Board, for suggestions regarding cuts of meats; to Clara Gebhard Snyder, Director of the Department of Foods and Nutrition, Wheat Flour Institute, for data regarding research in cake baking; and to Dr. Helen A. Hunscher, Head of the Department of Home Economics, Flora Stone Mather College, Western Reserve University, for suggestions regarding nutrition.

CONTENTS

	PAGE
TO THE PUPIL	XV

UNIT 1: BREAKFAST

CHAPTER		
I.	WHOLESOME BREAKFASTS	I
II.	SELECTING FRUITS AT MARKET—SERVING UNCOOKED FRUITS AT BREAKFAST	7
III.	THREE WAYS OF COOKING FRESH FRUITS	21
IV.	THE TREASURES FOUND IN FRUIT	31
V.	THE VALUE OF DRIED FRUITS AND POINTS IN SELECTING THEM	39
VI.	HOW BREAKFAST CEREALS ARE PREPARED FOR MARKET —BUYING AND COOKING THEM	49
VII.	WHAT SHALL WE DRINK FOR BREAKFAST?	65
VIII.	TOAST AND OTHER BREAKFAST BREADS	77
IX.	EGGS, BACON, AND OTHER BREAKFAST DISHES	92
X.	A BREAKFAST MENU—SETTING THE TABLE	104
XI.	SERVING A FAMILY BREAKFAST	117
XII.	GOOD MANNERS AT THE DINING TABLE	126

UNIT 2: MODERN HOUSEWIFERY

XIII.	KITCHEN EFFICIENCY AND CHARM	141
XIV.	A DISHWASHING CONTEST	160
XV.	REFRIGERATORS—STOVES AND FIREBUILDING	171
XVI.	BUDGETING TIME AND MONEY	189
XVII.	THE DINING ROOM AND ITS FURNISHINGS	203

UNIT 3: LUNCHEON OR SUPPER

XVIII.	CHOOSING A LUNCH AT SCHOOL—THE BOX LUNCH	221
XIX.	LUNCHEON OR SUPPER SOUPS—BUYING CANNED FOODS	235

CHAPTER	PAGE
XX. THE MAIN LUNCHEON DISH — MEAT SUBSTITUTES .	250
XXI. FRESH VEGETABLES FOR LUNCHEON OR SUPPER — BUY- ING VEGETABLES	264
XXII. SALADS AND OTHER DISHES FOR LUNCHEON OR SUPPER	287
XXIII. BREADS FOR LUNCHEON OR SUPPER	301
XXIV. LUNCHEON OR SUPPER DESSERTS	311
XXV. LUNCHEON OR SUPPER MENUS — COUNTING CALORIES — SERVING LUNCHEON OR SUPPER	327
UNIT 4: DINNER	
XXVI. MEATS FOR DINNER — BUYING BEEF	347
XXVII. MEAT SOUPS AND LEFT-OVER MEAT DISHES — VEAL, LAMB, MUTTON, PORK, LIVER	375
XXVIII. CHICKEN AND FISH FOR DINNER	392
XXIX. VEGETABLES FOR DINNER	412
XXX. YEAST BREADS	423
XXXI. SALADS AND DESSERTS FOR DINNER	434
XXXII. PLANNING AND SERVING A DINNER — COUNTING THE COST OF FOODS — CALCULATING FOOD VALUES — CARVING	448
UNIT 5: HEALTH AND CHILD CARE	
XXXIII. KEEPING WELL	465
XXXIV. CARING FOR THE SICK IN THE HOME	477
XXXV. KEEPING THE BABY AND HIS LITTLE BROTHERS AND SISTERS WELL AND HAPPY	489
XXXVI. FEEDING THE BABY AND HIS LITTLE BROTHERS AND SISTERS	498
UNIT 6: FOOD PRESERVATION	
XXXVII. CANNING FRUITS	511
XXXVIII. CANNED AND DRIED VEGETABLES	523
XXXIX. PRESERVES, CONSERVES, JELLY, AND SPICED FRUIT .	532
UNIT 7: HOSPITALITY	
XL. PICNIC LUNCHEES	541
XLI. CAKES	548

Contents

ix

CHAPTER	PAGE
XLII. FROZEN DESSERTS	564
XLIII. PARTIES AT SCHOOL AND AT HOME	573

APPENDIX

FOODSTUFFS — WHAT THEY DO IN THE BODY — WHERE VITAMINS ARE FOUND	585
WEIGHTS AND APPROXIMATE MEASURES OF SOME COMMON FOOD MATERIALS	587
POINTS IN SELECTING KITCHEN UTENSILS	588
DESTROYING HOUSEHOLD PESTS	591
PUPILS' REFERENCES	594
TEACHERS' REFERENCES	596
MEASUREMENT EQUIVALENTS	597
WEIGHT-HEIGHT-AGE TABLES FOR GIRLS AND BOYS OF SCHOOL AGE	597
FOOD VALUES OF COMMON FOODS	600
LIST OF CLASSIFIED RECIPES	610
INDEX	615

ILLUSTRATIONS

A Cheerful Kitchen and Tasty Food	<i>Frontispiece</i>
---	---------------------

FIGURE	PAGE
1. Good Foods for Breakfast	I
2. Four White Rats of the Same Age	2
3. A Measuring Cup of Orange Juice	9
4. A Ripe Banana	10
5. Sprayed and Unsprayed Apples	13
6. A Fruit Knife	14
7. An Orange Spoon	15
8. Preparation of Oranges	16
9. Serving Oranges in a Sherbet Glass	16
10. Serving Oranges on a Plate	16
11. Half-Pint and Pint Measuring Cups; Quart Measure; Nest of Measuring Cups; Sets of Measuring Spoons	23
12. Apple Compote	25
13. Water and Solids in an Apple	28
14. Water and Sugar	32
15. Starch and Water; Sugar and Water	33
16. Two Chickens That Were Fed Different Foods	36
17. Water and Solids in Grapes and Raisins	40
18. Utensils for Weighing and Measuring Food	42
19. Magnified Section of a Wheat Grain	50
20. A Double Boiler	52
21. Rinsing Rice after Boiling	55
22. An Electric Fireless Cooker	57
23. The Composition of a Wheat Grain	59
24. The Composition of Cooked Oat Breakfast Cereal	60
25. White Rat Whose Food Lacked Calcium; White Rat Whose Food Was Rich in Calcium	66
26. Skeletons of the Two Rats Shown in Figure 25	67
27. The Difference Made by Milk	68
28. Composition of Milk	70
29. Two Quarts of Milk	70
30. Three Kinds of Coffee Pots	73

FIGURE	PAGE
31. A Good Egg	94
32. Composition of Whole Egg; Composition of White and of Yolk	99
33. An Interesting Centerpiece	106
34. A Family Breakfast Table Set for Convenience in Serving	108
35. A Butter Spreader	110
36. A Breakfast Cover	111
37, A. A Hostess's Cover at a Family Breakfast	113
37, B. A Host's Cover at a Family Breakfast	113
38. Using the Knife and Fork Together	129
39. Using a Fork without the Knife	130
40. Buttering Bread	131
41. Keeping the Fork in the Left Hand	132
42. The Knife and Fork at the Close of a Meal or Course	133
43. Using a Soup Spoon	134
44. Using a Teaspoon	135
45. A Stream-Lined Step-Saving Kitchen	145
46. An Energy-Wasting Kitchen	146
47. A Swinging Sash in a Door	148
48. A Poster — "A stooped body is like a kinked hose"	150
49. A Poster — "The stoop she conquered"	151
50. Easily-Operated Curtains for a Cupboard	153
51. A Modern Type Tea Wagon	155
52. A Service Wagon	156
53. A Rack for Draining Dishes	166
54. A Section of a Refrigerator Wall	172
55. Food Storage in a Top Icer Refrigerator	173
56. An Iceless Refrigerator	174
57. Circulation of Air in A, Top Icer; B, Side Icer	175
58. Right and Wrong Positions of a Gas Burner	177
59. A Gas Burner Showing the Mixer	178
60. A Gas Burner Showing the Spud	179
61. Cleaning the Wick of a Kerosene Stove	181
62. Fire Box of Coal Range	183
63. <i>Home Comfort</i> , A Modern Coal Range Showing Indirect Draft	184
64. A Hot-Air Furnace	185
65. Dials of a Gas Meter	188
66. Dials of an Electric Meter	188
67. A Suggested Time Budget	191
68. A Good Arrangement of Furniture in a Dining Room	204
69. A Poor Arrangement of Furniture in a Dining Room	205

FIGURE	PAGE
70. A Good Arrangement of Articles on a Buffet	206
71. A Poor Arrangement of Articles on a Buffet	206
72. A Living-Dining Room	207
73. A Living-Dining Room Table	208
74. Another View of the Living-Dining Room Table	208
75. A Plate of Poor Design; a Plate of Good Design	209
76. A Plate of Good Design	210
77. Inlaid Silver	212
78. New Spoon; Spoon Scratched by Use and Scouring	214
79. Two White Rats Showing the Effect of Different Foods	222
80. A Checking Slip	224
81. A Card for Recording Credits for Milk, Fruits, and Vegetables	225
82. Bread Board and Knife	228
83. Different Sizes of Cans in Common Use	242
84. A Chopping Knife Useful for Cutting Juicy Vegetables	248
85. Composition of the Edible Portion of a Peanut	248
86. Composition of American Cheese	256
87. Potato Volcano	258
88. Composition of a Dried Navy Bean	260
89. Cabbage	265
90. Composition of an Uncooked Potato	266
91. Iron-Rich Foods	267
92. Calcium-Rich Foods	268
93. Phosphorus-Rich Foods	269
94. Foods Rich in Vitamin A	272
95. Foods Rich in Vitamin C	273
96. Poor and Good Tomatoes and Peas	276
97. Composition of Butter	289
98. A Salad-Dressing Bottle	291
99. A Bread-Stick Pan	307
100. A Luncheon Cover	338
101. A Family Luncheon Table Ready for Service	341
102. Composition of the Edible Portion of Beef Steak	349
103. Half a Beef Showing Bones and Cuts	352
104. Sirloin (next to the Rump and the Round)	353
105. Sirloin (in the Middle of the Loin End)	353
106. Sirloin (next to the Porterhouse)	354
107. Porterhouse (next to the Sirloin)	355
108. Club (next to the Prime Rib)	355
109. Standing Rib Roast	356

FIGURE	PAGE
110. Rolled Rib Roast	357
111. Rump	358
112. Round	359
113. Chuck and Shoulder-Round Steaks	360
114. Some Boneless Cuts of Beef	361
115. Magnified Drawing Showing the Structure of Lean Meat	362
116. Cuts of Veal	381
117. Cuts from the Legs of Lamb, Veal, and Beef	382
118. Cuts of Lamb	384
119. Lamb Chops	385
120. Cuts of Pork	387
121. Steps in Trussing a Chicken or Turkey	397
122. Back View of a Trussed Chicken	398
123. Composition of Fresh Cod (a Dry or Lean Fish)	402
124. Composition of Fresh Mackerel (a Fat Fish)	403
125. Composition of Oysters	408
126. A Common Steamer	413
127. An Aluminum Steamer	414
128. Growing Yeast Plants, Magnified	426
129. A Table Set for a Formal Dinner	455
130. Carving Sets	456
131. Carving a Steak	457
132. Carving a Rolled Roast	458
133. Carving a Standing Roast	459
134. Carving a Ham	460
135. The First Step in Carving a Turkey — Removing the Leg	461
136. The Second Step in Carving a Turkey — Removing the Wing	462
137. The Third Step in Carving a Turkey — Slicing the Breast	463
138. The Effect of Sunlight on Growth	469
139. First Aids to Beauty	471
140. Short-Stemmed Flowers	478
141. Long-Stemmed Flowers in a Tall Vase	479
142. Long-Stemmed Flowers in a Bowl	480
143. An Invalid's Tray	486
144. Amusing the Baby	491
145. Testing the Temperature of Milk	501
146. Glass Jars for Canning	514
147. Cake Pans	550
148. Parts of an Ice-Cream Freezer	566
149. A Christmas-Tree Cake	581

TO THE PUPIL

What can we learn from the lives of great women? "April 4th: Before supper I went with Nora into the storeroom and got some apples for mince meat. Mother peeled them and Nora and I chopped to the tune of *Yankee Doodle*. It makes it much easier."¹ So wrote Kate Douglas Wiggin in her diary when she was a girl. At that time mince meat was made only in the home and home making differed from that of the present day. Nevertheless, homes still require much work and thought. If you read the charming story of the life of Kate Douglas Wiggin, you will see that, as a girl, this interesting woman did her share in managing her home.

Alice Freeman Palmer, the splendid woman who became president of Wellesley College, also shared in helping at home. She began home making as a mere child. "When she was only four she could dry the dishes without dropping one; and when she was six, she could be trusted to keep the three toddlers younger than herself out of mischief."

Read about the lives of these and other women who accomplished much, such as Mary Lyon, the founder of Mount Holyoke College, Frances Willard, who has been called the "maiden crusader," and Jane Addams of Hull House.² You will see that these women, who spent their lives working for others, first learned service in their own homes. Service in their homes helped to prepare them for large service in the world.

What is a worthy home member? A father and a mother cannot do all there is to do to make a successful home. Of

¹ See *My Garden of Memory*, published by Houghton Mifflin Company.

² See *Heroines of Service* by Mary R. Parkman, the Century Co.

what use is it for mother to keep the house clean and father to keep the yard in order if some one in the home clutters them up? Even if mother speaks no harsh word, can there be peace in a home if some member of the family begins to find fault or quarrel? Every girl, every boy will find it well worth while to do his share in his home.

Doing one's share in the home means not only taking care of it but making it comfortable, peaceful, beautiful, and happy. A member of the home who does all he or she can to keep the home clean, to make it comfortable, to make it beautiful, and to make it happy is a *worthy home member*.

Why should courtesy begin at home? Start the day right in your home by saying "Good morning" with a smile and with a cheery voice. This kind of greeting may make the whole day brighter for every member of your family. A "thank you" when mother does something for you may make your mother's day brighter. *Courtesy or thoughtfulness for others is the basis of peace in the home.*

No girl or boy can afford to be discourteous at home. If one wants to be well liked or popular, one must cultivate good manners or consideration for the feelings of others. The place to practice good manners is the home. *Courtesy in the home is a part of worthy home membership.*

Why shall we study home making? In the days of our grandmothers only such subjects as history, Latin, and mathematics were studied at school. Now it is believed that in addition to studying these subjects *every boy or girl should learn to do better the worth-while things he is doing and is going to do.*

It may be that you go to the store, wash the dishes, set the table, cook or help to cook meals, care for the baby or younger brothers and sisters in your home. If so, would it not be a fine thing for you to know how to do these things in the best way possible? We often learn to like to do things when we know how to do them well.

Educators believe that boys and girls should be taught how to take care of themselves so as to keep well. Scientists have found that the kind of food a person eats has much to do with keeping well. Learning what to eat and how much to eat and then actually eating as one should are an important part of daily life.

For what may home making prepare you? Perhaps you are thinking of what you can do when you leave school. *Studying home making may be the beginning of an interesting life's work.* Ellen Richards began, as did many other famous women, by being a worthy home member. She became a great teacher of home making. Since her day many occupations that have to do with home making have been opened to women. A dietitian in a hospital, a manager of a tea room, a social worker, a designer of houses, a decorator of houses, a designer of gowns, a dress-maker, a household editor of a magazine, a director of the home economics department of a food manufacturing company, of a household appliance company, or of a bank needs to be educated in home making. These and many other interesting occupations are open to women who are trained in home making.

Whether your life's work is in the home, school, factory, office, hospital, store, or bank, you will find need for a study of home making. A woman may not cook food, but she will select it; she may not make her clothes, but she will buy them.

Frances Willard said, "If I were asked the mission of the ideal woman, I would say it is to make the whole world *home-like*." When Alice Freeman Palmer gave up the presidency of Wellesley College to become a home maker, she said: "*There is nothing better than the making of a true home.*"

UNIT 1: BREAKFAST

CHAPTER I

WHOLESOME BREAKFASTS

Can you answer these questions? If not, look for the answers as you study this chapter.¹

1. In the foods shown in Figure 1, what is substituted for coffee — the commonly used breakfast beverage?

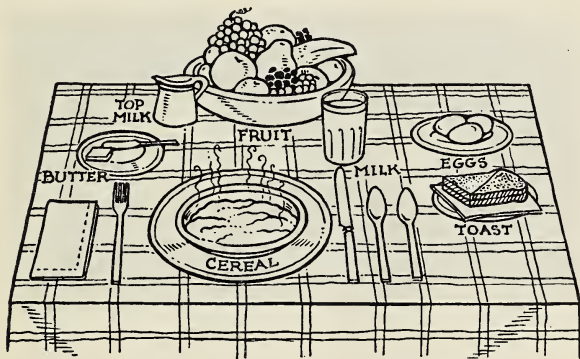


FIGURE 1. GOOD FOODS FOR BREAKFAST

Fruit, cereal with top milk or cream, eggs, toast, butter, and milk make a fine breakfast. Do you eat these foods?

2. If the breakfast shown in Figure 1 were planned for the grown-ups in your family, would you change the kind or the quantity of food for a young child?

3. How would you change the breakfast for a person who works in a lumber camp?

4. The following was printed on a menu card in a family hotel:

¹ *Note to the Pupil:* Each chapter of this book begins with a group of questions. You will probably not be able to answer all of them *before* studying the chapter. You should be able to answer all of the questions *after* studying the chapter. If necessary, *repeat your study* until you can answer every question.

Breakfast

Baked Apple or Orange Juice

or

Cereal with Cream

Toast or Rolls

Tea

Coffee

Milk

Which would be the more wholesome choice: Cereal, toast, and milk, or fruit, toast, and milk? Give a reason for your answer.

What foods are suitable for breakfast? Can you believe the four white rats in Figure 2 are of the same age? Two of the



Nutrition Laboratory, Battle Creek Sanitarium

FIGURE 2. FOUR WHITE RATS OF THE SAME AGE

The two larger white rats with sleek fur and bright eyes were fed *oatmeal* and *milk*. The two small, weak animals were fed on *buttered toast* and *coffee*.

Is there any question which breakfast is better? To be sure, buttered toast is a good food, but such foods as milk and fruits are needed with it.

These foods affect human beings in about the same way in which they affect white rats. It pays to eat wholesome foods.

white rats have plump bodies, soft fur, and bright eyes. They frisk around and act as if they felt well and were happy.

The other two are smaller. Their fur is bristly and their eyes dull. If anyone touches them, they snap and snarl. They have bad dispositions and appear to be unhappy. What made these brother rats so different? The answer is the kind of food they ate. Note the kind of food fed to each group.

It has been found that a diet of buttered toast and coffee will affect human beings in about the same way in which it affects white rats. They can eat the same kind of food that we do and digest it much as we do. A rat, however, does not live as long as a human being. It has been estimated that the average human being lives about thirty times as long. This means that a day of a rat's life is equal to thirty days or one month of a boy's or girl's life. Changes in growth take place much more rapidly in a rat than in a human being. This fact makes the white rat a very valuable animal on which to experiment. By feeding a white rat certain foods, we can see in a short while how they affect it.

What are some breakfast menus? Just as oatmeal and milk are good breakfast foods for white rats, so they are good breakfast foods for girls, boys, and grown-ups. Many persons, however, want a greater variety of foods for breakfast. *Fruit*, either cooked or uncooked, is a wholesome food for breakfast. It has a tart taste and is a good appetizer with which to start breakfast.

Oranges have a pronounced taste; oatmeal is mild in flavor. Then too, fruits are very moist foods, while cereals are drier and more solid. Because of this contrast and because fruit is a good appetizer, it is usually eaten before *breakfast cereals*.

For many persons desiring a simple breakfast, *fruit* and a *breakfast cereal* along with a *beverage* make up the morning meal. In addition to these foods, *toast* or some other form of bread is often eaten. Toast, like breakfast cereals, is mild in flavor, but because it is crisper and dryer, it helps to add variety to the breakfast.

When a greater variety or quantity of food is desired for breakfast, *eggs*, *bacon*, *hash*, or some other *hot dish* is often added.

In order that we may keep clearly in mind the foods that are generally considered suitable for breakfast, let us list them in outline form:

FOODS FOR BREAKFAST

Simple Breakfast (for school girl and boy and grown-ups exercising moderately)

Fruit

Breakfast cereal or buttered toast or both

Beverage — Milk or cocoa for boys, girls, and grown-ups

Other hot beverages for grown-ups, only

More Elaborate Breakfast (for grown-ups doing active work)

Fruit

Breakfast cereal

Eggs, bacon, or hash

Bread, rolls, or toast

Beverage

Why should we eat breakfast? Every one should eat breakfast. The body needs food regularly. From the evening meal to breakfast is the longest time between meals. The interval should not be further lengthened by going without breakfast. A headache or lack of energy is sometimes the result of eating no breakfast.

During the night our bodies become rested. Usually there is only a short time between the hour of rising and of breakfast. During this time, we have exercised very little. For these reasons we may not need as much food for breakfast as for either of the meals later in the day, but, as stated previously, we need some food to make us fit for the day's work and play.

Should all persons eat the same quantity of food for breakfast? If a family consists of a father who follows some occupation such as carpentering, a mother who takes care of the home, and a son and daughter who go to school, the father will probably require more food for breakfast, or a greater variety of foods, than any other member of the household. Those who do a great deal of active work, especially if the work is done in the open air, need more food for breakfast than those who are less active. Those persons who sit at their work and have little

exercise are usually better, from the standpoint of health, if a simple breakfast is eaten.

A young baby eats neither the same food nor so much food as an older child. A grandfather does not eat the same kind and quantity of food as a person who is not so old. Not only the occupation but the age of a person needs to be considered in selecting food for breakfast.

A doctor often prescribes the foods we may or may not eat when we are ill. We usually eat less when we are sick than when well. *Occupation, age, and health* affect the amount of food which we eat.

How may food affect your height and weight? The unhealthy white rats shown in Figure 2, page 2, do not weigh so much as the healthy ones. Nor are the unhealthy rats so long as the other two.

When people do not eat the right kind of food, their weight is seldom what it should be. In the appendix of this book, pages 597-599, are height and weight tables for girls and boys. These tables give the normal height and weight for girls and boys who are eating wholesome foods and are healthy. Is your *weight* what it should be for your *age* and *height*? If not, it may be that you are not eating the right kind and quantity of food. As you study this text you will learn what foods are wholesome not only for breakfast but for all meals of the day. From what you learn you should be able to select and prepare the right foods for health.

Note that in these tables the number of ounces you should *gain* each month is given. As the months go by, check up on your weight and see if you are gaining what you should.

SUMMARY

Breakfast should be eaten because the body needs foods regularly.

Less food should usually be eaten for breakfast than for other meals because the body has rested during the night, and little exercise is taken before breakfast.

The kind and amount of food eaten should depend upon a person's *occupation, age, and state of health.*

The *height and weight* of a person may be affected by food.

REVIEW QUESTIONS AND EXERCISES

Answer these questions orally or record answers in your notebook. Do not write in this book.

1. Is it just as well to eat no breakfast if enough food for both breakfast and luncheon is eaten at noon? Explain your answer.
2. Does the average person need breakfast if he has not worked or exercised since eating the evening meal? Explain.
3. If you, a high-school pupil, need more food than your grandmother but less than a three-year-old child, upon what does the difference in amount of food depend?
4. Plan at least two breakfasts suitable for yourself.
5. Plan a breakfast for your mother and father.
6. Did you make any difference in your own and your parents' breakfast? If so, why did you make the difference?
7. What foods may be considered basic breakfast foods?

HOME WORK

1. Take to school a list of the foods you eat for breakfast for one week. Do not sign your name to the list.
2. Discuss the lists in class.¹

¹*Note to the Teacher:* If desired, the lists may be folded, blank side of paper out. Then they may be collected and redistributed so that no pupil gets his own paper. The menus may then be criticized or commended impersonally.

CHAPTER II

SELECTING FRUITS AT MARKET — SERVING UNCOOKED FRUITS AT BREAKFAST

Can you answer these questions? If not, look for the answers as you study this chapter.

1. If the skin of a banana is green at the tip, is it fit to eat uncooked?
2. When buying oranges how can you tell whether they are juicy?
3. Why is it very important to wash the skin of an apple carefully before eating it?
4. Cantaloupes are fine-flavored only when they are ripe. How can you tell before tasting whether a cantaloupe is ripe?
5. Which is correct, — to remove the stems from strawberries before or after washing them?
6. Does the deep color of orange skin always indicate that the fruit is ripe?
7. What kind of orange often has green spots on the rind when the fruit is ripe?
8. Why do hand-picked apples usually sell for more than windfalls?

What do we need to know in order to buy wisely? If you have read *The Vicar of Wakefield* you probably remember how Moses, the son of the vicar, was sent to “a neighboring fair” to sell a colt and buy a horse. When the lad returned, he came without a horse but he had a box at his back. In the box was “a gross of green spectacles with silver rims and shagreen cases.” It seemed bad enough to his mother that he had traded the colt for a gross of silver-rimmed spectacles which the family did not need, but when she learned that the rims were not silver but “only copper varnished over,” she was greatly disappointed.

Moses had sold the colt for a fair price. Later he was persuaded that he would get a great bargain if he bought the case of spectacles. He spent all his money for a case of spectacles of inferior quality.

Moses made at least two mistakes in his buying :

1. He bought goods of inferior quality.
2. He bought goods he did not need, because he thought they were cheap.

If Moses had known more about the difference between real silver and imitations of silver, he would probably not have been induced to buy the spectacles. In order to buy wisely one needs to be able *to judge the quality* of the goods.

If you are sent to the grocery store or to the market to buy food for your household, you have a great responsibility placed upon you. You must exchange for food money which has perhaps been earned by hard work. It sometimes happens that the same price is charged for inferior food as for good food. If you are going to meet the responsibility which has been placed upon you, you need to know how to judge good food.

How can we judge the quality of fruits? *Citrus Fruits.* — *Oranges, grapefruit, and lemons* are known as *citrus* fruits. A good citrus fruit is juicy and fine-flavored. We cannot always be sure that a citrus fruit has these qualities by its appearance. However, the outside of a citrus fruit and its weight very often tell us something about its interior.

1. Ripe citrus fruit may or may not be of deep yellow or orange color. Hence *deepness of color cannot be depended upon to indicate ripeness*. You may find at market oranges marked "color added." This means that coal tar dye has been applied to the fruit. This treatment is harmless and is not prohibited by the government provided the coloring does not conceal inferior or underripe fruit and the fruit is properly stamped.

An orange or grapefruit whose skin is spotted with brown is known as *russet fruit*. Russeting does not affect flavor.

2. Good citrus fruit is usually *heavy*. When citrus fruits are light, they are usually *pithy* and contain little juice.

3. A *fine-grained, thin-skinned* citrus fruit is usually juicy.

The oranges most often found in our markets are the *California navel* oranges and the *Florida* oranges. The latter usually

have seeds. The navel oranges have no seeds and are thickened at the blossom end. The *Valencia* is an orange with a few seeds; it appears in our markets from May to November. These oranges when ripe are often green around the stem end.

Oranges vary greatly in size. Dealers grade oranges for size according to the number which may be held in a box. The largest oranges are always the most expensive. They are attractive for decorative purposes, but are not as good value as the medium or small oranges. When the juice is to be extracted, it is usually more thrifty to buy small oranges. (See Figure 3.) When the fruit is to be served whole, it is good economy to buy oranges of medium size.

While the citrus fruits can usually be bought at all times of the year, they are generally more plentiful and of better quality at certain seasons. *Oranges and grapefruit are most plentiful during the late winter and early spring months. Lemons are plentiful during the spring and summer months.*

Strawberries.—There is, perhaps, no way to judge with certainty the flavor of strawberries, except by tasting them. However, the appearance of a strawberry is some indication of its flavor. Fine-flavored strawberries are:

1. Firm and free from decay. (Strawberries decay readily. Keep them in a cool place.)
2. Bright red. (If a portion of a berry is green, it is underripe or poorly developed.)
3. Medium or large and uniform in size. (Sometimes unscrupulous

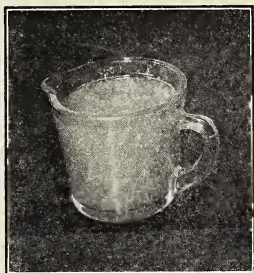


FIGURE 3. A MEASURING CUP
OF ORANGE JUICE

The juice of two large oranges at 45 cents a dozen or of three smaller oranges at 20 cents a dozen fills this cup. How much is saved on a cupful of juice by buying the smaller oranges?

dealers put the large fine berries on top of the boxes and the small poorly-formed or decayed berries underneath.)

Usually strawberries are sold in boxes. A quart box filled with strawberries weighs about $1\frac{1}{4}$ pounds. Strawberries are most plentiful during the *spring and early summer*.

Pineapples. — Pineapples of fine flavor are neither underripe nor overripe. To test for proper ripeness:

1. Note the color. A ripe pineapple is yellowish brown.
2. Attempt to pull some of the stiff leaves. If the leaves can be pulled out and are white to a depth of about an inch at the base, the pineapple is ripe.
3. Note the condition at the stem end. At this point the pineapple begins to decay. If this part of the pineapple is discolored and feels soft when pressed, the fruit is probably overripe.

Pineapples are most plentiful in the *spring and early summer*.

Bananas. — Unless you want to bake bananas or keep them some time, do not buy green bananas. Just as potatoes are not

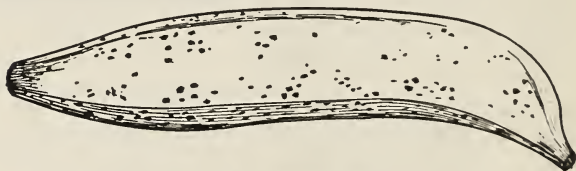


FIGURE 4. A RIPE BANANA

The tip of this banana has lost its green, showing that the banana is ripe. The brown flecks on the skin also indicate ripeness. A banana with a green tip is unfit to eat.

fit to eat unless they are cooked, so green bananas should not be eaten uncooked.

When a banana is ripe, *the tip is yellow or brown, not green; the skin is flecked with brown.* (See Figure 4.) Bananas will ripen after being cut from the tree. Brown spots on an unripe banana may be due to bruising.

This fruit is sold by the *dozen*, *pound*, or *hand*. A hand or branch contains ten to fifteen bananas. It is usually best to buy this fruit by weight. Bananas are in season the year round.

Muskmelons or Cantaloupes. — Muskmelons are like “the little girl with a curl right in the middle of her forehead.” When they are “good” they are “very, very good,” and when they are “bad” they are “horrid.” *Muskmelons are not good unless they are ripe.* The *cantaloupe* is a variety of muskmelon with rough, scaly, hard rind. However, the name *cantaloupe* is often applied to all kinds of muskmelons. The *honeydew* melon is large and has a smooth, light yellow rind. The following tests for ripeness do not apply to this kind of melon. Cantaloupes are in season from May to October.

The edible part or meat of some muskmelons is *green*, while that of others is *pink*. For this reason these fruits are sometimes called *green meats* and *pink meats*. To test the rough-rind melons for ripeness:

1. Notice the *netting* or *veins* on the outside of the rind.
 - a. In *ripe green meats*, the veins are heavy, well raised, and rounded; in the unripe fruit, the veins are flat.
 - b. In *ripe pink meats*, the veins are not heavy except at the blossom end.
2. Note the *color* of the *rind underneath* the *veins*.
 - a. In *ripe green meats*, the color is light green or yellowish green; in the unripe fruit, the color is darker green.
 - b. In *ripe pink meats*, the color is yellowish; in the unripe fruit, the color is green.
3. Examine the *stem end*. Notice whether the stem end is smooth or ragged. If the melon is ripe when picked, the stem will break clean from the fruit, leaving no ragged edges. Melons should ripen before picking. Pressing the blossom end of the fruit is not a satisfactory test. Repeated pressing bruises the fruit. When the spot is bruised, the test is unreliable.
4. Note carefully the *odor*. When melons are ripe they have a fragrant odor. Experience in judging melons will help you to know how to recognize the odor of a good melon.

Apples. — Some apples fall from the tree. These are known as *windfalls*. Others are picked from the tree. These are known as *hand-picked*. The windfalls are usually sold only in local markets. Being less sound and often bruised, they should sell for less than the hand-picked fruit. Such apples should be bought in quantity only for immediate use.

When apples are shipped in barrels, they may become bruised even though they have been carefully picked. Very fine apples are often packed in boxes. These apples are usually sold by the *piece* or *dozen* for eating raw. Less select apples are sold by the *pound* or *measure*.

There are many varieties of apples. Some apples ripen in the summer. These apples do not keep well. Others ripen in the fall. Some of the fall apples may be kept the entire winter. Certain varieties of apples are suitable for cooking only. Other varieties are suitable for eating uncooked only. A third group is suitable for both eating raw and cooking.

Some varieties of *cooking apples* are: 1. Greening — firm, with acid flavor. 2. Baldwin — firm, less acid than Greening, of pleasing red color. 3. Rome Beauty — large, pleasing in appearance, fine for baking.

Some varieties of *eating apples* are: 1. Delicious — large, of pleasing appearance, with mild flavor. 2. Jonathan — of beautiful color, with fine flavor (only fair for cooking).

Some varieties of apples of fine flavor, good for *both eating and cooking* are: 1. McIntosh — early fall variety. 2. Winesap — late winter variety. 3. Grimes Golden — with light-colored skin. 4. Northern Spy — thin-skinned, bruises readily.

Frozen fruits. Fruits frozen by modern commercial processes retain their natural flavor and color. Many frozen fruits, including berries and larger fruits, are in the market. It is necessary to keep them in the frozen state until they are used.

Why do fruits need washing? Figure 5 tells an interesting story. In order that fruit may ripen in perfect condition insects

must be prevented from growing on it. To destroy insects, fruit is sprayed with poisonous substances. These poisons may remain on the fruit. The federal government requires that spraying chemicals be removed from fruit shipped into another state. Since all states do not have protective regulations, for safety wash fruits before using.



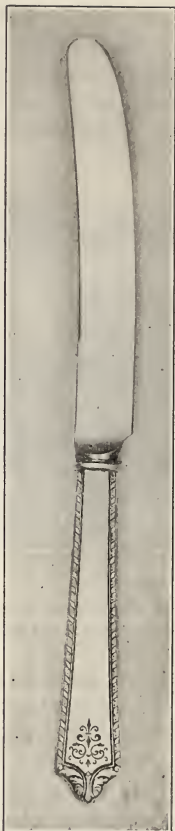
Ohio Agricultural Experiment Station

FIGURE 5. SPRAYED AND UNSPRAYED APPLES

These are Rome Beauty apples. No insects were allowed to grow on the apples shown at the left. This accounts for the finely developed fruit.

Sometimes soil or dust clings to fruits. On fruits such as strawberries, growing near the ground, there are apt to be bits of sand. In picking, packing, hauling, and shipping, fruits are handled by many workers who may have dirty hands. Thus we see that it is necessary to wash fruits to remove poisons applied in destroying insects, and bits of soil, dust, or other impurities. If fruit is eaten without paring, cut away the skin around the ends of the core.

How should fruits be washed? Do you know how useful a small scrub brush is in the kitchen? Food with a rough surface



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FIGURE 6. A FRUIT KNIFE

This knife used for cutting fruit is smaller than the knife used for cutting meat. For juicy fruits such as pears, a fork is sometimes used with a fruit knife for formal service.

can be washed much better and more quickly with a brush than with a cloth.

If the skin of fruit is to be eaten, it is especially necessary to wash it carefully. Large fruits such as apples, oranges, and melons may be washed in a pan of water or by holding them under water running from a faucet. If large fruits are to be served with their skins on, they should be dried on a clean towel after washing.

Small fruits such as berries are most conveniently washed by placing them in a colander or strainer and letting water from a faucet run over them. When the stems must be removed from berries, strawberries for example, the fruits should be washed before stemming them. This prevents loss of juice. Berries and grapes usually become sufficiently dry for use if they are allowed to drain in the strainer or colander for a few minutes after washing.

How are fresh fruits prepared for serving? Apples, oranges, bananas, peaches, pears, plums, and grapes may be washed, dried, and served *whole* with their skins on. Each guest should be provided with some kind of silver knife. (See Figure 6.)

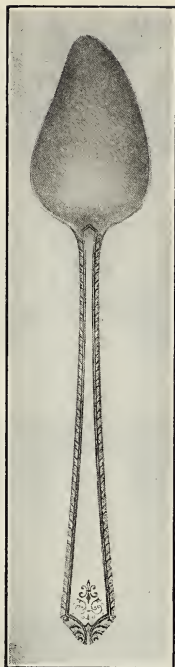
Grapefruit and oranges are *cut into halves* before serving. They are cut *across the sections*. By means of knife or scissors, the core is cut from the center and the edible portion loosened around the edges and between the different sections. The edible portion is then eaten with a teaspoon or an orange spoon. (See Figure 7.)

Often bananas, peaches, and other fruits are sliced. Sliced fruit is usually served in sauce dishes or sherbet glasses and eaten with a spoon.

Very juicy fruits such as oranges are often *juiced* before serving. To extract juice from a citrus fruit, cut it in half across the sections and remove the juice with a fruit juicer. Serve the juice cold in a glass smaller than a water tumbler. However, do not let the juice stand in the refrigerator overnight, as some vitamin C may be oxidized and thus destroyed by so doing. The flavor is also affected by long standing. Chill the fruit before extracting the juice. Place a dessert plate under the glass of fruit juice before serving.

Thus the four general ways of serving fruits are *whole*, *halved*, *sliced*, and *juiced*. Different ways of serving fruits are shown in the following.

Oranges. — Besides being served whole or halved, oranges may be prepared for serving as shown in Figures 8, 9, and 10.



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FIGURE 7. AN ORANGE SPOON

The bowl of this spoon is more pointed than that of an ordinary teaspoon, making it convenient to use in eating halved oranges or grapefruit.



FIGURES 8-10. THE PREP-
ARATION AND SERVING OF
ORANGES

1. In paring an orange to remove the tough membrane, use a navel orange or one with very few seeds. Wash the orange. Hold it over a bowl to catch the juice. Then remove the rind, cutting away the white portion and tough membrane.

2. To cut a pared orange into sections, use a sharp knife and cut on either side of each membrane which divides the sections. Then lift out each loosened section.

3. Orange sections prepared as shown in 1 and 2 may be served in a glass sherbet dish. Underneath the sherbet glass put a dessert plate. Oranges arranged in this way are suitable for serving as a breakfast fruit or as a dessert.

4. Orange sections prepared as shown in 1 and 2 may also be served on a dessert plate. Oranges arranged in this way are suitable for serving as a breakfast fruit, a dessert, or a salad.

Bananas. — 1. Peeled; stringy materials scraped from edible portion;¹ sliced, or cut into thick slices and each slice cut into 4 pieces; served with top milk or cream. Bananas discolor quickly after they are peeled. If they must stand, dip them in a citrus or pineapple juice.

2. For occasional serving — peeled and scraped; placed on plate; longitudinal groove cut from upper portion; groove filled with strawberries or cherries; served with top milk or cream.

Peaches. — 1. Whole; placed on plate; served with a knife or knife and fork.

2. Halved; placed on plate; edible portion eaten from the skin with a spoon.

3. Pared; sliced; served in sauce dish or sherbet glass with sugar or with sugar and top milk or cream.

(Peach juice stains table linen. It is well to use paper napkins when peaches are served whole or halved.)

Muskmelons or Cantaloupes. — Halved; seeds removed; served on plate; eaten with a spoon; salt often added. These fruits should be chilled in the refrigerator. Chilling in this way is preferable to serving cracked ice in the center.

Apples, Pears. — Whole, on plate, with knife or knife and fork.

Grapes. — Whole; eaten from fingers.

SUMMARY

In buying fruits, keep in mind the following points to guide your selection:

1. *Citrus fruits* (oranges, grapefruit, and lemons)

a. heavy

b. thin, fine-grained skin

2. *Strawberries*

a. firm, free from decay

b. bright red

c. uniformly large or medium in size

3. *Pineapples*

a. yellowish brown

b. stiff leaves which may be pulled from fruit; base of leaves is white to a depth of one inch

c. stem end not soft or discolored

¹ The stringy material of bananas is not indigestible, but it is bitter.

4. *Bananas* (test for ripeness)
 - a. tip yellow or brown, not green
 - b. skin flecked with brown
5. *Muskmelons* (test for ripeness)
 - a. appearance of rind
 - (1) green meat: heavy, well-raised and rounded veins; color under veins — light green or yellowish green
 - (2) pink meat: veins flat, except at blossom end; color under veins — yellowish
 - b. stem end clean, with no ragged edges
 - c. fragrant odor
6. *Apples* (classification)
 - a. (1) early (ripe in summer)
 - (2) winter (ripe in fall)
 - b. (1) cooking — greening, Baldwin, Rome beauty
 - (2) eating — Delicious, Jonathan
 - (3) eating and cooking — winesap, McIntosh, Grimes golden, northern spy

Purpose of washing fruits:

To remove dirt and poisons used in spraying.

Method of washing large fruits:

Immerse in water or hold under open faucet.

Use scrub brush.

Dry with a towel fruits served with their skins on.

Method of washing berries and grapes:

Place in a strainer or colander; hold under open faucet; let drain.

Remove stems of berries after washing.

Method of serving fresh fruits:

Whole or halved, or pared and sliced.

REVIEW QUESTIONS AND EXERCISES

Read each statement very carefully and decide whether it is true or false. On a sheet of paper or in your notebook put in a column the numbers corresponding to the statements. After each number write the word True or the word False.

1. Navel oranges contain seeds.
2. Windfall apples are apt to be bruised.
3. Heavy oranges are usually juicy.
4. A banana whose skin is green at the tip is ripe.
5. It is thrifty to buy the largest oranges.
6. Muskmelons do not have a fine flavor unless they are ripe.

7. A honeydew melon has a rough skin.
8. The Delicious apple is a good cooking apple.
9. Ripe pineapples are yellowish brown.
10. A banana is not fit to eat uncooked unless it is ripe.

Each of the following statements is completed in more than one way. Only one way is correct. Read each statement carefully and choose the best word or phrase to complete it. Then copy the sentence, including only the correct conclusion.

11. It is well to extract orange juice to be served at breakfast
(a) the evening before (b) shortly before serving.
12. Fruit needs to be washed (a) to make it keep better (b) to remove dirt and poisons used in spraying.
13. Strawberries should be stemmed (a) before washing (b) after washing.
14. Large fruits with rough skins should be washed (a) with a brush (b) by dipping in a pan of water.
15. When peaches are served whole or halved, it is advisable to use (a) paper napkins (b) linen napkins.

HOME WORK

1. If possible, select some fruit at market. When you buy the fruit consider it from the standpoint of quality and good value.
2. Take a report on fruit buying to your teacher. The following plan may help you in making the report.

NAME OF FRUIT	POINTS INDICATING GOOD QUALITY OF FRUIT	POINTS INDICATING GOOD VALUE	HOW FRUIT WAS SOLD i.e., BY MEASURE, WEIGHT, OR NUMBER

3. You have learned how valuable a food fruit is. You have learned also that fruit should be eaten every day and several times a day. One of the ways that you can be a worthy home member is to prepare enough fruit for serving the family either at breakfast or at the evening meal.

Breakfast

Some of the fruits to be served for breakfast may be prepared the evening before. Other fruits should be prepared just before serving. Plan what fruit is to be served, how you will prepare it, and when you will prepare it.

If you want credit for this work at school, a report made according to the following table may be taken to your teacher.

DATE SERVED	KIND OF FRUIT	METHOD OF PREPARING	TIME PREPARED (EVENING BEFORE OR MORNING)

Signed,
(Signature of pupil)

CHAPTER III

THREE WAYS OF COOKING FRESH FRUITS

Can you answer these questions? If not, look for the answers as you study this chapter.

1. How does the surface of water appear when the water is boiling?
2. If you were going to cook fruit, what kind of pan — tin, iron, granite, or aluminum — would you select? Why?
3. In making apple sauce, when should the sugar be added — before or after cooking?
4. Should fruit be pared so that the parings are thick or so that they are thin? Give a reason for your answer.
5. Will fruit boiled gently cook as quickly as that boiled vigorously? Explain your answer.
6. How can whole pared apples be cooked so as to become rosy in color?
7. Why does an ordinary steel knife blade used in paring an apple discolor the fruit?

Shall fruits be served cooked or uncooked? Who does not like the flavor of fresh strawberries better than that of cooked ones? The flavor of most fruits is not improved by cooking. Moreover, when these foods are cooked at home, some of the valuable nourishing materials contained in them may be destroyed. Nature has made most ripe fruits so soft and easy to eat that it is unnecessary to cook them. While fruits are in season, eat most of them raw or fresh.

However, it may be a good thing to cook some fruits. Raw, green apples are unfit to eat, but they make delicious and wholesome apple sauce. Fruits that are green or underripe should be cooked. A few fruits, such as certain varieties of greening apples, are insipid in flavor when eaten raw. They are usually good, however, when cooked. It sometimes happens

that more fruit is on hand than can be eaten before it spoils. In such case, the fruit may be cooked so as to preserve it longer.



APPLE SAUCE

2 pounds apples (6 medium)
 Water — usually about 1 cup
 Pinch salt
 Sugar — $\frac{1}{2}$ cup or more

1. Wash apples thoroughly. Pare them as thinly as possible. (Why *thin* parings?) Cut away decayed portions and core the apples. Cut them into quarters or eighths.

2. Pour enough water into an aluminum or enamel sauce pan to cover the bottom of the pan to a depth of $\frac{1}{2}$ to 1 inch. Add the apples. (Note that the water does not nearly cover the apples.) Add the salt.

3. Cover the pan and place it over a low flame. Let the apples cook until, when tried with a fork, they are tender. If long cooking is required, more water may be needed.

4. After removing from the flame, add the sugar at once. For tart apples at least $\frac{1}{2}$ cup will be needed. Stir to mix the sugar with the fruit. Yield: 6 servings.

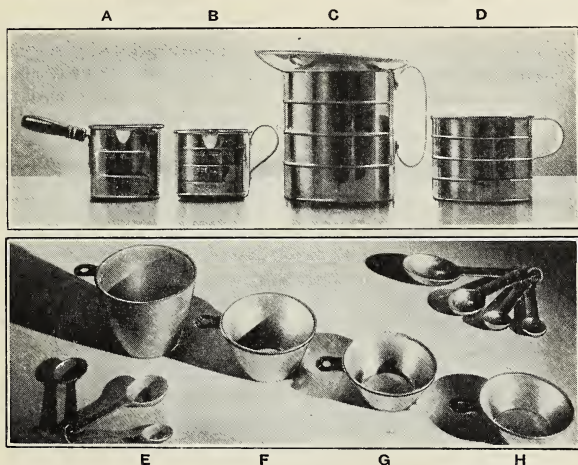
Some persons press apple sauce through a strainer. Unless you wish to tint apple sauce by cooking unpared red apples, straining seems unnecessary, for usually apples, after cooking, may be broken into pieces by stirring.

Variations: Additional Flavoring. — If the apples are somewhat insipid in flavor, cook with them:

1 inch stick cinnamon, or	$\frac{1}{2}$ teaspoon grated nutmeg, or
2 whole cloves, or	peel and pulp $\frac{1}{2}$ orange, cut into bits

Or, after cooking, add: 1 teaspoon lemon juice

Other Fruit Sauces. — Peaches and pears may be made into sauce in the same way as apples. Usually for these fruits less sugar is required.



Cleveland Plain Dealer

FIGURE 11. HALF-PINT AND PINT MEASURING CUPS; QUART MEASURE; NEST OF MEASURING CUPS; SETS OF MEASURING SPOONS.

Half-pint *measuring cups* *a* and *b* are marked for $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, and $\frac{3}{4}$ of a cupful. *Quart measure* *c* and *pint measuring cup* *d* are divided into fourths and thirds.

The *cups* *e*, *f*, *g*, *h* hold 1, $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$ of a cupful respectively. In the three latter, part of a cupful can be measured more efficiently than in a graduated measuring cup. The larger set of *measuring spoons* consists of tablespoon, teaspoon, half teaspoon, and fourth teaspoon. The three latter comprise the smaller set; it contains no tablespoon.

When using any one of these measuring devices — either cup or spoon — fill the utensils, then *level the material with a knife*. *All measurements given in this book are level.*

What is the difference between gentle and vigorous boiling? If apples or other fruit are to be cooked so as to prevent breaking, they must be cooked gently. To understand how fruit should be cooked so as to preserve its shape, do the following.

Experiment 1:¹ *To show the difference between gentle and vigorous boiling.*

(a) Fill a beaker half full of water. Wipe the outside of the beaker and place it over a flame. (In order to avoid breaking the beaker, turn the flame low enough so that it does not touch the glass above the level of the water.) Heat the contents of the beaker until the surface of the water is bubbling vigorously. When *the surface of the water* begins to show a few bubbles, we say the water is *boiling*. When the bubbling is *rapid and continuous*, we say the *water is boiling vigorously*. Insert a chemical thermometer in the water, holding it so that the bulb of the thermometer does not touch the glass bottom of the beaker. What temperature is indicated on the thermometer?

(b) Reduce the flame until fewer bubbles appear on the surface. When this occurs, we say the water is *boiling gently*. While the water is boiling gently, again insert the thermometer in the water. How does the temperature of gently boiling water compare with that of vigorously boiling water?

How are fruits cooked so as to retain their shape? Whole apples cooked so as to retain their shape are called apple compote. (See Figure 12.) The fruit for this dish must be *cooked carefully*. Let us prepare it:

¹ *Note to the Pupil:* Whether you do an experiment or your teacher does it for you, you should learn something from the experiment. Notice that the subject of Experiment 1 (and of all other experiments in this book) is expressed to show that something is to be accomplished. You have not learned what you should from an experiment until the aim of the experiment has been carried out.

Note to the Teacher: The experiments given in this text may be performed by the teacher or by each pupil. Directions for each experiment are divided into sections, lettered *a, b, c*, etc. Inserted in each section are one or more questions pertaining to the important points of the experiment. At the teacher's discretion, pupils may record answers to these questions in a notebook or answer them verbally. If the pupils record the answers to the questions as they perform the experiment, it is possible for a teacher to examine and check the answers while the pupils are working. The pupils may then have the benefit of the teacher's help and criticism at a time when suggestions will do the pupils the most good.

It seems wise to require the pupils only to answer the questions and not to describe the process or manipulation of the experiment. Each question should be answered, however, in a complete sentence and not in a one-word answer.

APPLE COMPOTE

6 apples
 $\frac{1}{2}$ cup sugar

1 cup water
Pinch salt

Wash, pare, and core the apples.

In a granite or an aluminum saucepan, put the sugar, water, and salt. Place the saucepan over a flame and heat until the mixture boils. (A mixture of sugar and water is known as a *sirup*.) Put the apples into



FIGURE 12. APPLE COMPOTE

Cooked *carefully* in *sirup*, these apples became tender, but did not break into pieces.

the hot sirup. When the cooler apples are placed in the sirup, the latter usually stops boiling. When the sirup again reaches the boiling point, turn down the flame so that the sirup boils gently. Then cover the pan. (By covering the pan, we can more easily cook the portion of the apples above the surface of the sirup. Can you explain why?) In a few minutes lift the cover of the pan to see whether the sirup is *boiling gently*. If necessary, adjust the flame so the sirup boils gently. When the apples have cooked for about 10 minutes, stick with a fork the portion of the apples immersed in the sirup. If the lower part of the apples is tender, carefully turn the fruit, and let the cooking continue until the apples are entirely tender. Care should be taken not to cook

the apples too long. They usually break into pieces if the cooking is continued after the fruit is tender.

Carefully remove the apples from the sirup, placing them on a plate or other serving dish. Pour the sirup over the apples.

Serve hot or cold. Yield: 6 servings.

Variations: *Rosy apple compote* may be prepared by adding red cinnamon candies or red sugar to the sirup before the apples are placed in it. The cinnamon candies will both tint the apples and flavor the fruit with cinnamon. The red sugar will merely tint the apples. Use 2 level tablespoons of cinnamon candies or 1 teaspoon of red sugar.

Other Fruit Compotes. — Whole peaches or pears may be prepared in the same way as plain apple compote. Apples or other fruits may be halved or quartered and cooked to prevent breaking in the same way as whole fruits. Plums may be cooked without breaking. They should be washed and the skins pricked in a few places with a knitting or darning needle. The pricking may prevent the skins from bursting.

How are apples baked? Baked apples are generally popular. The recipe follows:

BAKED APPLES

6 apples 6 level tablespoons sugar (white or brown)
6 tablespoons water

After being washed and cored, apples may be prepared for baking as follows:

1. Unpared. (The skin may be cut halfway between stem and blossom end of apple; this makes the apple keep its shape better.)

2. Pared.

3. Upper half of apple only (around stem end) pared.

Place the apples in a granite or an aluminum pan or in a glass baking dish. Pour a tablespoon of sugar in the core of each apple. Pour the water around the apples. Bake in a *hot* oven. If you have a heat-regulated oven, set the wheel at 400 degrees. Bake for 20 to 40 minutes, or until the apples are tender. The time of baking will depend upon the kind and size of apple.

Addition of Butter and Flour. — If you like, instead of putting sugar only in the cores of the apples, you may use a mixture of sugar, flour, butter, and cinnamon. For 6 apples, stir together

6 tablespoons sugar	1 tablespoon butter
3 tablespoons flour	$\frac{1}{2}$ teaspoon powdered cinnamon

Put some of this mixture in the core of each apple. Pour water in the bottom of the pan as for plain baked apples. Bake as directed for plain apples.

What kind of pan should be used in cooking fruit? One day a small girl, in her mother's absence from home, was cooking apple sauce for the evening meal. The girl selected a small iron pan in which to cook the apples. Soon she went to the stove to see how the apples were progressing and much to her amazement found that the apples, which were white after paring, had become an unattractive gray. What had happened to discolor the fruit? Some of the iron of the pan, coming in contact with the acid of the apples, had formed a dark-colored substance. Have you not noticed this dark-colored substance on the blade of your knife when you pare an apple? The knife blade is made of steel and steel is composed largely of iron. When the acid of the apple comes in contact with the iron of the knife blade, the dark-colored substance is formed. If a stainless-steel knife is used, there is, of course, no stain left on the knife blade.

From this you see that it is well not to select an iron pan for the cooking of apples or other fruit. It is usually well, also, not to use a tin pan, for tin pans are not made of pure tin. So-called tin pans are made of iron which is coated or plated with tin. Sometimes the tin wears off the iron, leaving the iron uncovered.

In the recipes for apple sauce, apple compote, and baked apples, note that you are directed to use enamel or aluminum pans or glass baking dishes. Utensils of these materials should be used for the cooking of all fruit.

Why is only a small quantity of water generally used in cooking fruits? When you made apple sauce, your attention was called to the fact that the water added did not cover the fruit. Let us consider the reason for adding only a small quantity of water.

When you pare an apple you have doubtless noticed that the pared apple feels and looks moist. Apples and fruits in general

contain more water than most other foods. (See Figure 13.) When apples are cooked, some of the water is drawn from the solid portion of the apple. For this reason, we do not add much water to apples when we cook them. For most fruits, it is well to add only enough water to cover the bottom of the pan.

Should fruits be cooked in covered or in uncovered pans? Because of the fact that the fruit is not covered by the small

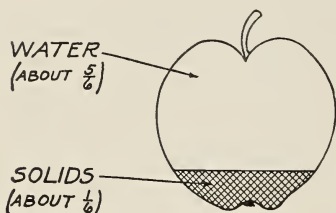


FIGURE 13. WATER AND SOLIDS IN AN APPLE

Are you surprised that a firm apple is five sixths water? Although only one sixth of the edible part of an apple is solid material, it is composed of substances which are very nourishing. What these nourishing substances are will be found in a later chapter.

When fruit is baked uncovered in the oven, the dry heat of the oven will, of course, cook the upper portion of the fruit. However, some prefer to cover fruit during baking. Apples baked in a covered pan will keep their shape better, but they will not brown as well as when baked uncovered. The browning may be accomplished by placing the apples in a broiling oven for a few minutes.

When should sugar be added to cooked fruit? In the directions given for apple sauce, sugar is added *after* the fruit is cooked, while the sugar is added to apple compote and baked apples *before* the fruit is cooked. Let us see why the sugar is added to these fruit dishes at different times. In making apple sauce, we expect the fruit to break up or lose its shape during the cooking process. In making apple compote we try to keep the fruit whole — to prevent it from breaking up. When it is desired to prevent fruit from breaking, we first make a sirup and

amount of water in which it is cooked, *cover the pan* so that the steam formed by the boiling water will cook the upper layer of apples.

When fruit is baked uncovered in the oven, the dry heat of the oven will, of course, cook the upper portion of the fruit. However, some prefer to cover fruit during baking. Apples baked in a covered pan will keep

cook the fruit slowly in the sirup. Other conditions being the same, fruit will break up more readily when cooked in plain water than when cooked in a sirup.

The fact that the flavor of most fresh fruits is more delicious than that of cooked fruits has been discussed. In cooking fruits, it is desirable to make them taste as much like the fresh fruit as possible. When sugar is added to fruit sauces *after cooking* rather than before cooking, it is thought that the fruit has a *finer flavor* — more like fresh fruit. Then, too, fruit sauce is less apt to scorch when the fruit is cooked with water to which no sugar is added.

SUMMARY

Underripe fruits should be *cooked* to make them wholesome.

Cooking *prevents* fruits from *spoiling* readily.

Three common methods of cooking fruit are:

1. Cooking it in water to make a sauce. Add only a small quantity of water. Add sugar after taking from fire.
2. Cooking it in sirup so as to preserve its shape. Cook fruit slowly so it will not break up.
3. Baking it at 400° F., 20 to 40 minutes.

Water is boiling when its surface is *bubbling*.

Water is boiling vigorously when its surface is *bubbling rapidly*.

Water is boiling gently when its surface is *bubbling slowly*.

Enamel, aluminum, glass, or earthenware *utensils* should be used for cooking fruits.

REVIEW QUESTIONS AND EXERCISES

Answer each of the following questions with one or very few words. Without copying the questions write the answers on a sheet of paper or in your notebook. Number the answers as the questions are numbered.

1. What percentage of water do pared and cored apples contain?
2. How should fruits be pared?
3. In what should whole fruits be cooked to hold their shape?
4. How should fruit sauce boil?
5. If fruit is to boil gently should the flame be long or short?
6. If fruit cooked on the surface burner is not covered with water, what cooks the portion of fruit extending above the water?

CHAPTER IV

THE TREASURES FOUND IN FRUIT

Can you answer these questions? If not, look for the answers as you study this chapter.

1. What makes many fruits taste sweet?
2. How does orange juice differ from plain water?
3. If a teaspoon of sugar is stirred in a glass of water, what happens to the sugar?
4. What makes lemons taste sour?
5. From where are minerals obtained?
6. What is mineral matter?
7. What material largely composes the skins of fruits?
8. Why is orange juice fed to babies?

Why should we eat fruits? Pearls are found in the ocean. Diamonds are found in the earth. Treasures are found also in fruits. The treasures found in fruits are more valuable to man than the gems of the land and sea. Fruits help to give color to the blood, strength to bones, and pearliness to the teeth because of the treasures contained in them. There are materials in fruits which help make us feel good and keep the body in good trim. These foods which taste so good are packed full of treasures.

Fruit may be served at breakfast, at luncheon, or at dinner. It is one of the foods which may be eaten with benefit more than once a day. Let us see what treasures fruit contains that make it such an important and necessary food.

Why do many fruits have a sweet taste? We think of oranges and watermelon as juicy fruits. This means that these fruits contain much *water*. Any food from which we can easily press moisture contains much water.

If we taste the juice extracted from oranges, apples, or other fruits, we find that the juice is far different from ordinary water in taste. Most fruit juices are very pleasing to the taste. There must, then, be some substances mixed with the water of fruit juices to make them taste so good. Let us perform an experiment in order to learn about the materials which are mixed with the water of fruit juices.

Experiment 2: *To show how water dissolves solid sugar.*

(a) Fill a tumbler or glass measuring cup $\frac{1}{4}$ full of water. To the water add 1 teaspoon of sugar. Sugar, as you have of course observed, is a solid substance, while water is a liquid substance. (See Figure 14.) Stir the contents of the tumbler or cup. Can you still see the solid sugar?



FIGURE 14. WATER AND SUGAR

Water is a liquid; sugar is a solid. Sugar will dissolve in water.

(b) Taste the contents of the tumbler or cup. Describe the taste.

(c) Compare the appearance of the contents of the tumbler or cup with that of plain water.

(d) Set the tumbler or cup aside for at least five minutes. Does the solid sugar settle to the bottom of the tumbler? How can you tell that the sugar is still in the water?

If a *solid* substance such as sugar disappears when it is added to water, we say it *dissolves* in the water. Many kinds of solids will dissolve in water. When a solid dissolves in water, we call the mixture of the solid and water a water solution. *A water solution is always clear.* It is never cloudy in appearance, as is a mixture of flour and water. If the solid substance is dissolved it will *not settle* to the bottom of the vessel containing the solution. (See Figure 15.)

The reason why fruit juices taste different from plain water is that there are substances dissolved in the water of the fruit. One

of the materials dissolved in the water of fruit juices is *sugar*. The natural sugar dissolved in fruit juices is not quite the same as granulated sugar, but the sugar in fruit has a sweet taste and many properties similar to those of granulated sugar. The kind of sugar found in fruit is sometimes called *fruit sugar*.

Why do most fruits have a tart taste? Fruit juices not only are sweet, but also have a tart taste. It is perhaps this combination of sweet and sour that makes fruit juices so pleasant in flavor. The materials that give fruit juice its tart taste are known as *acids*. Some fruit juices, such as lemons, contain much acid. The acids of different fruit juices vary in kind. The fact that some fruit juices contain one kind of acid and some another accounts in part for the difference in flavor of different fruit juices. The acids found in foods may help the body in digesting foods.

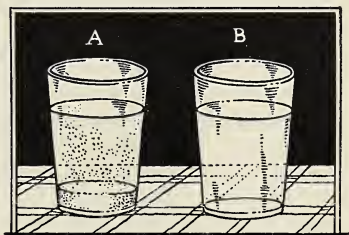


FIGURE 15. A, STARCH AND WATER;
B, SUGAR AND WATER

A spoonful of starch added to water will soon settle. Sugar added to water disappears; none settles in the bottom of the glass.

Do lemons and other fruits produce acids in the body? Since lemons and many other fruits have a sour taste due to acids, one might suppose that they would leave acids in the body. When fruits are digested and assimilated, the material left from them is not acid. It is basic or alkaline. In general, fruits do not produce acids in the body. Most fruits and also vegetables are base-forming foods.

What other materials are found in fruits? You know that salt which we sprinkle on our foods comes from the earth. In the earth are many materials other than common salt which are

like salt in some ways. Common salt and other materials somewhat like it are known as *minerals* or *mineral matter*. Just as sugar dissolves in water so do many of the minerals.

We know that the roots of growing plants, shrubs, and trees must be covered with earth or soil. The plant roots draw moisture from the soil. In the soil-water, minerals are dissolved. The plant, then, gets from the soil not only water, but minerals, which are dissolved in soil-water. The minerals are distributed to all parts of the plant. If a plant such as an orange tree bears fruit, minerals are carried to the fruit.

Minerals not only help make fruits taste good, but help make us healthy. Our bodies must have mineral matter. One of the best ways to supply our bodies with mineral matter is to eat fruits.

Why is orange juice fed to babies? Little babies are usually weighed very often. When babies are *well* they steadily increase in weight. It is important, then, to know whether or not a baby is gaining in weight. More than ten years ago, a scientist observed that a little baby nine months old failed to gain in weight. Some orange-peel juice was fed to this baby and within a month the baby gained two pounds.

This makes us want to know what the orange-peel juice contained that made the baby grow. Scientists have found that not only the juice of orange peel but the juice of the pulp of an orange contains materials called *vitamins*. Vitamins exist not only in oranges but in other fruits, in milk, and in many different foods. Everybody needs to eat foods containing vitamins to make him grow and to keep him in good health. Physicians generally advise the feeding of orange juice to young babies because it contains vitamins and minerals. We shall later learn more about vitamins. The vitamins, as well as mineral matter, contained in fruits make them especially valuable foods.

What is the solid, fibrous material of fruits? When the juice is pressed from an orange or lemon, some solid material remains clinging to the peel. When apples are crushed in cider-making,

so as to extract the juice, a solid pithy substance is left. The solid material left after extracting the juice from the orange, lemon, or apple contains a fibrous substance known as *cellulose*. Cellulose exists in the *edible portion* of all fruits, vegetables, and grains. It also exists in large quantity in the *skins of fruits and vegetables* and in the *outer covering of grains*. Cellulose is the solid material which holds fruits, vegetables, and grains in shape.

Because cellulose is a solid substance and because it remains a solid substance during digestion it makes the other materials with which it is mixed *bulky, i.e.*, the foods take up more space. Now bulky foods are needed because they stimulate the action of the intestines in digesting foods and in eliminating waste materials from the body. The fibers of cellulose are said to act as scrub brushes *in keeping the intestines clean*. The cellulose contained in fruits adds to the value of fruit as a food.

What is the A B C of nutrition? Vitamins were formerly named only by the first letters of the alphabet. But now that it is recognized that vitamins are chemical compounds, they are being given names that indicate their composition, as follows:

Vitamin A and *Carotene*¹

B { *Vitamin B* (*B₁* or *thiamin*) (thī-ām'in)
 Group² { *Riboflavin* (rib-o-flav'in)
 { *Vitamin PP*³ (or *nicotinic acid*)
 { *Vitamin B₆* and probably others

Vitamin C
 (or *ascorbic acid*)
Vitamin D
Vitamin E
Vitamin K

Vitamin G is not included in this list because the vitamin formerly named *G*, or *B₂*, has been found to consist of more than one vitamin, viz., riboflavin, vitamin PP, and probably others.

How do vitamins benefit the body? Vitamins help to

1. Make us grow normally
2. Increase resistance to disease
3. Prevent defective teeth
4. Give us an appetite

¹ Found in carrots and green plants; converted into *Vitamin A* when eaten.

² The original *vitamin B* has been found to consist of a number of vitamins.

³ PP means *pellagra preventive*; pellagra (pē-lā'grā) is a disease.



Ohio Agricultural Experiment Station

FIGURE 16. TWO CHICKENS THAT WERE FED DIFFERENT FOODS

The little weak chicken on the left was given food lacking in vitamins. The food of the fine healthy chicken contained plenty of vitamins. Human beings as well as chickens need vitamins to keep them well.

Of course, each of the vitamins does not do all of these things. In the appendix, pages 585 and 586, a list of the vitamins with what each does in the body is given. As you study more about foods, refer to this list often so you may learn how to distinguish one vitamin from the others.

In what foods are the different vitamins found? Although vitamins are found in many foods, there are some foods that contain more than others. We speak of these foods as being *rich in vitamins*.

Milk, fruits, vegetables, butter, eggs, and whole grains are among the foods richest in vitamins.

How is the quantity of vitamins in foods indicated? Scientists have been able to determine the effect of vitamins on health by feeding tests. They have been able to learn whether a food

contains only a little of a vitamin, a moderate amount, or a generous portion. Plus signs are used to indicate that a food contains vitamins. One plus sign means that the food contains the vitamin; two plus signs, that it contains a moderate amount, and three plus signs, that it is rich in the vitamin. A minus sign means that there is no appreciable amount of the vitamin. A question mark means that there is doubt about the presence or amount of the vitamin. An asterisk means that the presence of the vitamin has not been established.

A table showing the vitamins in fruits follows. The table gives only vitamins A, B, C, and G. The presence of vitamins D and E has not been determined for many foods.

NAME OF FRUIT	VITAMINS			
	A	B	C	G ¹
Apples, uncooked . . .	+	+	+ to ++	++
Bananas	+ to ++	+	++	++
Cantaloupes	++	++	+++	++
Grapefruit	+	++	+++	++
Lemon juice	+	++	+++	++
Orange juice	+	++	+++	++
Peaches, fresh	+ to ++	+	++	*
Pineapple, fresh	++	++	++	+
Raspberries	*	*	++	*
Strawberries	+	+	+++	*
Watermelon	+	+	+++	+

SUMMARY

A mixture of sugar and water is called a *water solution of sugar*.

Water solutions are *clear uniform* mixtures of water and other substances which *do not settle* on standing.

Fruit juices may be considered as water solutions. Dissolved in the water of fruit are sugar and other substances.

¹ Vitamin G consists of riboflavin, vitamin PP, and others. See page 35.

Fruits contain chiefly :

- | | |
|----------------|-------------------|
| 1. Water | 4. Mineral matter |
| 2. Fruit sugar | 5. Vitamins |
| 3. Acids | 6. Cellulose |

Fruit sugar gives fruit a *sweet taste*.

Acids give fruit a *tart taste*.

Mineral matter and *vitamins* are needed to keep the body *healthy* and to make it *grow*. Fruits are especially valuable foods because they contain mineral salts and vitamins.

Cellulose is a solid substance, insoluble in water. For the most part it forms the skin and other solid parts of fruit. It gives *bulk* to foods and stimulates digestion.

REVIEW QUESTIONS AND EXERCISES

Copy the following sentences, writing a word in place of each blank.

1. Sugar and _____ will make a water solution.
2. Flour does not _____ in water.
3. A material contained in the skins of fruits in large quantity is called _____.
4. This substance is not _____ in water.
5. The sugar contained in fruits is called _____ sugar.
6. Substances in fruits giving them a tart taste are _____.
7. Two substances contained in fruits which make fruits especially valuable foods are _____ and _____.
8. Orange juice is fed to babies because it contains _____ and _____.
9. The fibers of cellulose serve as scrub brushes in the _____.
10. Sugar is a _____ substance ; water is a _____ substance.

CHAPTER V

THE VALUE OF DRIED FRUITS AND POINTS IN SELECTING THEM

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Dried peaches usually cost more a pound than fresh peaches. Why is it that dried fruit is generally considered less expensive than fresh fruit?

2. What do fruits lose when they are dried?

3. If you were going to buy some sweets, which would be a better choice — candy or dates? Give a reason for your answer.

4. Small prunes usually cost less a pound than large prunes, but there are fewer prunes and hence fewer seeds in a pound of large prunes than in a pound of small ones. Which are the more economical?

5. Why should food be protected from dust and flies?

6. Why does it pay a merchant to be courteous to his customers? Why does it pay a customer to be courteous to a salesman?

7. Why should dried fruits be soaked in water before cooking?

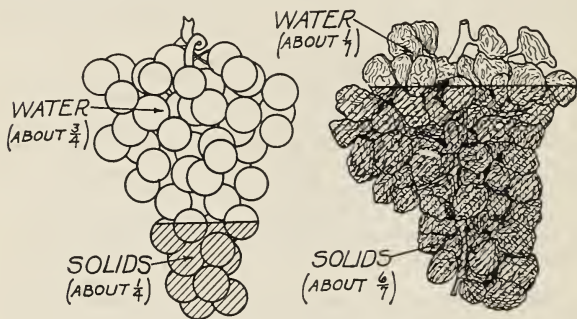
In what kind of store or market should you buy food? In the home, food should be covered to protect it from dust and flies. Both dust and flies may contain disease germs or harmful *bacteria*.¹ Flies crawl over filthy things, collect bacteria on their feet, and then get on food.

Food should be protected from dust and flies in the store or market as well as in the home. When you go to buy food, it is important to notice whether the food is protected from flies and dust. Also notice whether the store is light and clean and whether the clerk has clean hands and a clean apron. Food cannot be kept wholesome in a dirty place, or if it is touched with dirty hands.

¹Bacteria are tiny plants, too small to be seen without a microscope.

What courtesy should you show in a store? The successful merchant has found that it pays to be courteous and helpful to customers. He knows that if he is not pleasant and does not give good service, his customers are not likely to return. He has found also that he must be honest in order to keep his trade.

The customer as well as the storekeeper should be polite. The salesman's courtesy deserves courtesy in return. Then, too, it pays to be considerate; the courteous customer is likely to get better service.



Redrawn from U. S. Department of Agriculture Chart

FIGURE 17. WATER AND SOLIDS IN GRAPES AND RAISINS

Notice that the fresh fruit contains more water than solids, while the dried fruit contains much more solid material than water.

Good service in a store deserves consideration from the customer. Repay a salesman's service by avoiding unnecessary handling of foods and by carrying small packages home.

Why do dried fruits have wrinkled skins? Dried apricots, peaches, prunes, raisins, and all other dried fruits have wrinkled skins. After a pound of fresh fruit is dried the fruits weigh only a little more than $\frac{1}{3}$ of a pound. During the drying, the fruit loses water. This loss of water reduces the weight of the

fruit; it also shrinks the fruit. Because the fruit shrinks, its skin becomes folded or wrinkled. (See Figure 17.)

How do dried fruits compare with fresh fruits in composition? The question may arise, Does the fruit lose any material other than water in drying? Does it lose some of its sugar? its mineral matter? its cellulose? The answer to the last three questions is "No." There is just as much sugar, mineral matter, and cellulose in fruit after drying as before drying. Hence a third of a pound of dried fruit contains as much sugar, mineral matter, and cellulose as a pound of fresh fruit. Dried fruits are especially valuable for their mineral matter. Although the sugar, mineral salts, and cellulose are not destroyed by drying, some of the vitamins contained in fresh fruits are probably destroyed. Excepting fruits sulphured in drying, drying almost entirely destroys vitamin C. Hence dried fruits are not so valuable a source of vitamins as fresh fruits.

Compare the vitamins in oranges with those in prunes and raisins.

FRUITS	VITAMINS			
	A	B	C	G (see p. 37)
Oranges	+	++	+++	++
Prunes	++	++	—	++
Raisins	—	+	—	+

How do dried fruits compare in cost with fresh fruits? If a pound of dried apricots of good quality can be bought for 35 cents, and a pound of fresh apricots can be bought for 18 cents, one might judge from this that fresh apricots cost much less than dried apricots. Let us consider this matter. We have learned that after fruit is dried, it weighs only about a third as much as it did before drying. About 3 pounds of fresh apricots costing (3×18) 54 cents would be equivalent to

one pound of dried apricots costing 35 cents. Then, too, the fresh apricots contain seeds, while the dried fruit does not. Hence we see that dried apricots are cheaper than fresh ones.

It should be remembered, however, that the dried fruits are not so rich in vitamins as fresh fruits. If dried fruits are the



FIGURE 18. UTENSILS FOR WEIGHING AND MEASURING FOOD

Before placing food in the scale pan, adjust the needle, if necessary, so that it points to zero.

Often large quantities of food can be more efficiently *weighed* than measured. A container holding 2 cupfuls is convenient for *measuring* more than a cup.

The difference in price between fresh and dried apricots represents somewhat the difference in price between fresh and dried fruits in general. It is usually considered that dried fruits are a cheaper source of sugar, mineral salts, and cellulose than fresh fruits. We must remember, of course, that the price of fruits differs greatly in different parts of the country.

only kind of fruit used in the winter time, care should be taken to eat some vitamin-rich foods, such as milk and leafy vegetables. Since oranges are in season in the winter time, and are one of the cheapest fruits, it is a good plan to use them along with dried fruits. Oranges, as we have learned, are rich in vitamins. (See page 41.)

Fresh apricots in many localities cost more a pound than some fresh fruits, such as apples. But dried apricots are also higher in price than some of the other dried fruits. Hence we believe that the

What are some points to consider in buying dried fruits?

Prunes. — Large, medium, and small prunes are found at the market. Large prunes cost more a pound than small ones. Should we then buy the smallest prunes we can find, if we want to get the most for our money? Let us see. Prunes contain large seeds, which are, of course, waste material. It takes 70 to 90 small prunes to weigh a pound; in 70 to 90 prunes there are, of course, 70 to 90 seeds. There are 40 to 70 medium-sized prunes in a pound, while there are 20 to 40 large prunes in a pound. The larger the prune, the fewer there are in a pound and the fewer the seeds. We can determine which size of prunes is cheapest by the following experiment:

Experiment 3: *To determine the differences in cost of the edible portions of large, medium, and small prunes.*

(a) Purchase a pound each of large, medium, and small prunes. Record the cost of each pound.

(b) Count the number of prunes in each pound. Record the number of each.

(c) With a sharp paring knife, carefully remove the seeds from the prunes. Then weigh the edible portion of each pound of prunes, noting the number of ounces. Record the weight in ounces of each. (See Figure 18.)

(d) Find the cost a pound of the edible portion of each pound of prunes by the simple process of dividing and multiplying as follows:

$$\frac{\text{Cost a pound of whole prunes}}{\text{Weight in ounces of edible portion}} \times 16 = \text{Cost a pound of edible portion.}$$

That is, divide the cost a pound of the prunes by the weight in ounces of the edible portion. Then multiply the quotient by 16. (Why is the number 16 used?) The product is the cost a pound of the edible portion of the prunes. Tabulate your results as follows:

	LARGE PRUNES	MEDIUM PRUNES	SMALL PRUNES
(a) Cost per pound
(b) Number per pound
(c) Weight of edible part
(d) Cost per pound of edible part

There are factors other than the cost to be considered in buying prunes. The *flavor* and the *appearance* of the fruit should claim your attention.

Cook the three lots of prunes without adding sugar, as directed on page 46. After they are cooked, taste each. Note the sweetness of each and also the differences in flavor. Are the large prunes any sweeter or finer in flavor than the small or medium fruit? Whether the more pleasing appearance of the larger fruit is worth the added cost is a matter for the individual to decide.

Prunes from Oregon usually have a tart flavor, while those from California are sweet flavored.

Dried Apricots. — Dried fruits are generally sweet; the apricot is an exception — it has a tart taste. If colorful foods appeal to you, the apricot should be one of your favorites. Because of their pleasing color and flavor, apricots are one of the most popular of the dried fruits.

In preparing apricots for drying, the larger fruit is sometimes peeled. Most apricots, however, are dried with their skins on. Since dried-apricot skins become very tender when cooked, it is doubtful if it pays to buy the peeled dried fruit. The latter is more expensive than the unpeeled. Although dried apricots cost more a pound than some of the other dried fruits, they are less expensive than canned apricots.

Dried Peaches. — Dried peaches have a good flavor. To be sure, there is a greater difference in flavor between dried and canned peaches than between dried and canned apricots. Nevertheless, dried peaches have a characteristic flavor which is much liked. Dried peaches usually cost less a pound than dried apricots. Like apricots, dried peaches are less expensive than canned peaches.

Raisins. — When you purchase raisins, the grocer may ask you whether you want *seeded* or *seedless* raisins. The former are raisins from which the seeds have been removed. The

seeded raisins come in packages ; they are desirable for puddings and other dishes.

The *seedless* raisins are prepared from grapes which are grown without seeds. They are smaller than the seeded kind and have a different taste. Seedless raisins are sold in packages and in bulk. When buying package raisins, note the number of ounces printed on the label. Does a package weigh a pound?

You will also find so-called *table* or *cluster* raisins at market. These raisins are prepared from grapes which are not removed from the stems. Cluster raisins usually cost more a pound than seeded or seedless raisins. Then, too, in buying a pound, one pays for stems and seeds. These raisins are, however, very attractive for table use.

Dates. — Dates may be purchased both in bulk and in package. The question arises as to which is the cheaper. When you go to market get the *price by the pound* of bulk dates and the *cost by the package* of package dates. Note the weight printed on the package. Compute the cost a pound of package dates as follows :

$$\frac{\text{Cost a package}}{\text{Number of ounces in package}} \times 16 = \text{Cost a pound of package dates}$$

That is, divide the cost of a package of dates by the weight in ounces of the package. Then multiply the quotient by 16. The product equals the cost by the pound of package dates. *Pitted package dates* cost more than unpitted dates.

There are two types of dates — *golden brown* and *black*. The golden brown have larger seeds, thicker skins, and coarser texture. The black have smaller seeds, thin skin, sweet rich flavor.

Figs. — Different styles of dried figs are found at market. *Cooking* or *stewing figs* are generally sold in bulk or in strings and are inexpensive. *Pressed* figs are pressed and packed in layers. These are more expensive than the cooking dried figs. *Pulled*

figs, *i.e.*, high-grade meaty fruit, square or round in shape, are packed in boxes.

There are two chief types of figs — *black*, or Mission variety, and *white*, or Smyrna and Adriatic varieties. In order of quality, Smyrna figs rank first; Mission, next; and Adriatic, third.

How shall dried fruits be cooked? If we learn to cook one dried fruit, we should be able to cook any one of the dried fruits, for the general method is the same. Since different kinds of dried fruit vary in sweetness, the quantity of sugar used for each may vary. As you follow these directions, try to think out the reason for each step.

DRIED FRUITS

$\frac{1}{2}$ pound dried fruit	1 pint (2 cups) hot water
Sugar	{ for prunes — $\frac{1}{8}$ to $\frac{1}{4}$ cup or none
	{ for apricots or peaches — $\frac{1}{2}$ cup

Put the dried fruit in a bowl or pan and wash in hot water. If the fruit is very much wrinkled, use a brush to clean it. Then place the fruit in an enamel or aluminum pan. Add the water. Cover the pan to prevent dust from getting into it, and let the fruit remain for about 2 hours or until plump. After the fruit has been soaked in water, note how it is changed in appearance. Soft dried fruits need no soaking.

Place the fruit and water in which it was soaked on the stove and cook slowly, *i.e.*, boil gently. (See Experiment 1, page 24.) Usually if dried fruit has been soaked in water sufficiently, it is necessary to cook it for not more than 15 minutes after the boiling point is reached. The fruit should be cooked until tender, but not broken into pieces.

Remove from the flame. If sugar is to be used in the fruit, add it. Stir only enough to mix the sugar with the fruit. Care should be taken not to break the fruit in mixing the sugar. Serve hot or cold. Yield: 6 servings.

Additional Flavoring. — Lemon juice may be added to the prunes or peaches. Use 1 tablespoon for $\frac{1}{2}$ pound of fruit. Add the lemon juice when the sugar is added.

Mixture of Dried Fruits. — A mixture of one of the sweet dried fruits such as raisins, dates, or prunes with the tart apricot makes a pleasing combination. With $\frac{1}{2}$ pound of apricots use 1 cup of raisins, dates, or prunes.

What sweet should you buy — candy or dried fruit? What boy or girl does not like figs or dates or raisins? These fruits are sweet and taste good. The kind of sugar found in fruit is a better food than granulated or cane sugar from which candy is usually made.

We have learned that dried fruits contain, in addition to sugar, very valuable materials, namely, minerals. This combination of sugar and minerals along with other materials found in fruit makes dried fruits a more wholesome sweet than candy. Therefore, it is wise to satisfy your desire for sweets with fruits instead of candy.

SUMMARY

In drying fruit, there is

1. Loss of water.
2. No loss of sugar, cellulose, and mineral matter.
3. Loss of vitamin C, unless sulphured in drying.

Dried fruits are a cheaper source of sugar, mineral matter, and cellulose than *fresh fruit*, but they contain less of vitamin C.

Buying dried fruits:

Prunes — small prunes numbering 70 to 90 to the pound are the most economical.

Apricots — more expensive than most dried fruits, cheaper than canned apricots.

Peaches — less expensive than canned peaches.

Raisins — seedless, seeded, cluster; cluster most expensive.

Dates — sold in bulk or package. Two types — golden brown, black.

Figs — types, *black* and *white*. White figs, Smyrna variety, best quality.

Cooking dried fruits:

1. Soak in hot water.
2. Cook until tender.
3. Add sugar and flavoring if desired.

REVIEW QUESTIONS AND EXERCISES

1. After cooking dried fruits, the sugar should be added *at once* to the hot fruits. Why not wait until the fruits become cold before adding sugar? (See Experiment 2, page 32.)

2. Why is the sugar added after rather than before cooking?

3. What is the purpose of soaking dried fruits in water before cooking?
4. Why should the fruit be covered while soaking?
5. Notice the vitamins in lemons. (See page 37.) Why is the addition of lemon juice to cooked prunes desirable from the standpoint of health?

HOME WORK *

1. Prepare some kind of dried fruit at least once during the week.
2. If possible, select some dried fruit at the store.

CHAPTER VI

HOW BREAKFAST CEREALS ARE PREPARED FOR MARKET — BUYING AND COOKING THEM

Can you answer these questions? If not, look for the answers as you study this chapter.

1. From what parts of a plant do cereals come?
2. What substance is contained in the husk of cereals?
3. What is meant by ready-to-eat cereals?
4. Which is more economical to buy, oatmeal in package or in bulk?
5. Should one eat sugar on a breakfast cereal? Why?
6. How much starch is there in breakfast cereals?
7. Is there water in uncooked breakfast cereals?
8. Name the materials you know to be in breakfast cereals.
9. What is meant by ash in food? Why is it so called?

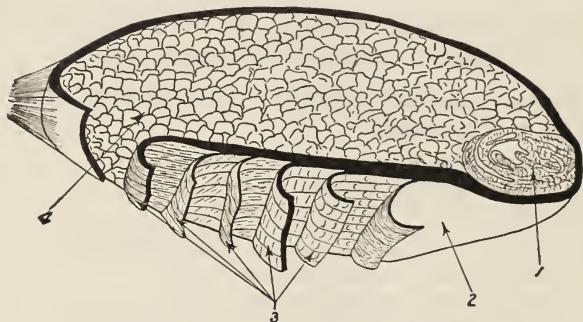
What are breakfast foods? Such foods as oatmeal, rolled wheat, and corn flakes are very commonly eaten for breakfast. For this reason they are called *breakfast foods*. Breakfast foods are also known as *breakfast cereals*. Cereals are the *seeds of grasses*, such as wheat, corn, oats, and rice. Food manufacturers prepare cereals or grains for use at breakfast in various ways. We need to know something of what the food manufacturer does to the grains if we are to select breakfast cereals intelligently.

How are uncooked breakfast cereals prepared for market? Have you ever examined a wheat or oat grain and observed what a tough coating there is on the outside? (See Figure 19.)

In getting grains ready for us to eat, they are put through rollers and the outer husk removed. The whole grain from which the husk has been removed may then be broken into pieces. Oatmeal or cracked oats (not rolled oats) is prepared in this way.

Some grains from which more or less of the outer coating is removed are crushed into a meal. Cream of Wheat and corn meal are prepared in this way.

Cereals made ready for selling in this way have not been



Redrawn from Wheatena Chart

FIGURE 19. MAGNIFIED SECTION OF A WHEAT GRAIN

The grain was cut in two lengthwise; the layers of the outer coating were loosened to show them plainly. The parts of a wheat grain are:

1. *Germ* or *embryo* that sprouts and grows when the grain is planted. This is rich in fat, proteins, minerals, and vitamins B and PP.
2. Very tough covering or *husk*, usually removed when the grain is crushed or ground. This consists largely of cellulose.
3. Coats commonly called *bran*. All these layers contain mineral matter, cellulose, proteins, and vitamin B.
4. Inner portion of the grain made up chiefly of *starch* and *proteins*. (See page 58.)

cooked at the factory. These *uncooked breakfast cereals* need cooking at home to make them tender and palatable.

How are partially cooked cereals prepared in the factory? Rolled oats and rolled wheat belong to another group of breakfast cereals. These grains are rolled out by machinery and also steamed. The cereals are thus partially cooked in preparing them for market. Since the grains are rolled out and partly

cooked in the factory, they do not require such long cooking in the home. However, most of the partially cooked cereals are more palatable if they are cooked in the home for a longer time than indicated on the package containing them. The rolled grains are the *semi-cooked* or *steam-cooked*.

What cereals are cooked in the factory? Corn flakes, puffed rice, and Shredded Wheat are examples of a third group of breakfast cereals. These cereals are thoroughly cooked in the factory, usually by steaming or baking. They may be eaten without any further cooking at home. Such foods are known as the *ready-to-eat breakfast cereals*.

Shall we buy ready-to-eat or uncooked cereals? When cereals are cooked in the factory, the cooking process requires work and special equipment. It is to be expected, then, that more will be charged for ready-to-eat cereals than for the uncooked cereals. Some of the ready-to-serve cereals cost almost four times as much as those that require cooking in the home. If strictest economy has to be practiced, the uncooked cereals should be bought, provided the fuel required to cook them is not too expensive. Cereals can be very successfully cooked in the *fireless cooker*. (See page 56.) This is an economical method.

On the other hand, if a homekeeper is burdened with duties, it may be wise for her to buy ready-cooked breakfast foods. Occasional use of ready-to-eat cereals adds variety to the breakfast menu. For young children, the home-cooked cereal is advised.

Shall we buy package or bulk cereals? Cereals that are to be cooked may be purchased in bulk or in packages. Bulk cereals are cheaper; package cereals are probably cleaner. Which shall you select? Cereals need to be well cooked. This thorough cooking sterilizes the cereal, *i.e.*, destroys bacteria which may have got into the cereal from handling or contact with dust. Notice whether the bulk cereal has been stored in

the grocery store in a clean place; if it has, it seems unnecessary to buy the more expensive package food.



FIGURE 20. A DOUBLE BOILER

Two pans, the upper one being made to fit into the lower, make a double boiler. The lower pan holds water; the upper pan, the food to be cooked. When a double boiler is placed over a flame, the food in the upper is cooked over water which is kept boiling in the lower pan.

The utensil needed is a double boiler. (See Figure 20.) In case you do not have a double boiler, two pans, one larger than the other, may be used for cooking cereals. Let us see how to prepare breakfast cereals.

Because the ready-to-eat cereals are not cooked in the home or, at most, are merely heated to crisp them, it is well that these cereals come in package form.

How should breakfast cereals be cooked? Cereals are dry foods. They must have water added to them to cook them and to make them taste good. They also need salt. Three ingredients — water, salt, and cereal — are all that are needed in preparing a plain breakfast cereal.

BREAKFAST CEREALS

3 cups boiling water

1 teaspoon salt

1 cup rolled oats

or

$\frac{3}{4}$ cup Cream of Wheat, Wheatena, farina, or Ralston

Fill the lower part of a double boiler about a third full of boiling water. (We find that for most double boilers this quantity of water in the lower part is sufficient. If the utensil is filled more than a third full, the water usually boils over.)

In the top part of the double boiler, put 3 cups boiling water and 1 teaspoon salt. Place this part of the double boiler *directly over the flame*. When the water boils, slowly add the cereal, stirring the mixture as it is added. Keep on stirring and cook the cereal for 10 *minutes*.

(Carefully examine the cereal as you stir it. Do the cereal and water remain separated? What do you think the cereal must contain that makes the mixture pasty and thick?)

Now place the top part of the double boiler over the lower part. Set the lower part over the flame. Cover the top part. Let the mixture cook for 30 *minutes*. Serve hot with top milk or cream. Yield: 5 *servings*.

Variation. — Fruit added to cereals makes a delicious and nutritious combination. Most of the dried fruits are especially suitable for serving with breakfast cereals.

A few minutes before taking the cereal from the fire add:

- 1 cup ($\frac{1}{2}$ package) *dates* — washed, stoned, and cut in pieces, or
- $\frac{1}{2}$ cup seedless or seeded *raisins* — washed, or
- $\frac{3}{4}$ cup whole or pressed *figs* — washed and cut in pieces.

Fresh *ripe bananas* and *peaches* as well as *cooked apples* and *dried and canned fruits* are good served with breakfast cereals.

Should sugar be served with breakfast cereals? If cereals are well cooked, they have a good taste. If a great deal of sugar is sprinkled over a cereal, the taste of the cereal is covered up by that of the sugar. Most persons eat more sugar than they should. If a good deal of sugar is eaten, the foods that are needed for health are likely to be neglected. Too much sugar may also upset digestion.

It is better to use only milk or cream on cereals. The good flavor of the cereal can then be enjoyed.

What cereal is often served not only at breakfast but at other meals? What points should be considered in buying it? There is another cereal that should be mentioned. This cereal is often served not only for breakfast, but for other meals. It is sometimes used to take the place of a starchy vegetable at dinner or luncheon. Have you already guessed that this cereal is *rice*?

At market we find *white rice* and *brown rice*. Shall we buy

the white rice because of its light color? While the appearance of food is to be considered, its nutritive value is more important. In preparing rice for market, the outside tough hulls are removed. The remaining whole grain is gray or brown in color. Each grain of rice prepared in this way retains the *outer skin* and a part known as the *germ*.¹ Such rice is called *brown rice* or *natural rice*.

In the factory rice is prepared by the removal not only of the outside tough hull, but also of the outer skin and germ. Such rice is lighter in color and is known as *white rice*. White rice is not so nutritious as brown rice, because the outer skin and germ are especially rich in mineral salts and vitamin B. Brown rice does not keep so well as white rice.

How is rice cleaned? Before cooking, rice must be cleaned. *To wash rice* put it in a strainer. Hold the strainer under a faucet and let the water run through the cereal. Rub the rice between the hands. Rinse.

How is rice cooked? Rice may be cooked in a double boiler in the same way as other breakfast cereals.

DOUBLE-BOILER-COOKED RICE

3 cups boiling water

1 teaspoon salt

1 cup rice

Follow the directions for cooking cereals given on page 52. When the rice is first added to the water, stir to prevent the grains sticking to the pan.

Let the rice cook in the double boiler until it is tender. For white rice this usually requires about *45 minutes*; for brown rice, *1½ hours*. The time for cooking brown rice may be shortened if it is soaked in water before cooking. Yield: *6 servings*.

Some persons like rice cooked in so much water that it has to be drained away from the cereal after cooking. Such rice is cooked as follows:

¹ The *germ* of a cereal should not be confused with a germ that causes disease.

BOILED RICE

3 quarts boiling water

2 teaspoons salt

1 cup rice

Note that 3 quarts or 12 cups of water are used for cooking rice in this way. This is 4 times as much as is used in cooking rice in a double boiler.

Put the water and salt in a large pan. When the water boils rapidly, add the rice slowly. The water should not stop boiling. Keep the water *boiling rapidly*. As it boils see how the rice grains are tossed around. This prevents sticking. Boil the rice until tender. This usually takes about 20 minutes for white rice.

Pour the rice into a colander or strainer to drain. Save the rice water. Pour clean hot water through the rice. (Fig. 21.) Drain. Cover the colander with a cloth and place over steaming water for a few minutes. Yield: 6 servings.



Cleveland Plain Dealer

What is lost when rice is boiled in much water?

Experiment 4: To show what rice water contains.

(a) Put a little of the starch poured from the boiled rice into a test tube. Let it cool. Then, add a drop or two of tincture of iodine. What color does the mixture become?

(b) If tincture of iodine is added to a substance, and the substance turns blue or blue-black, starch is present. What does the iodine test show is contained in the water drained from boiled rice?

Unless the water drained from boiled rice is used in making a soup or a sauce, it is wasteful to cook rice in this way. However, some persons like boiled rice very much better than that from which no water is drained because there is no starch paste surrounding the rice grains.

FIGURE 21. RINSING RICE AFTER BOILING

Boiled rice has starch paste on the outside of the grains. Some of this can be removed by rinsing the rice with hot water.

How is rice served? Rice may be served as any breakfast cereal with milk, top milk, or cream. Served with butter and salt, like a cooked potato, it may be used for luncheon, supper, or dinner.

Rice is very good served with fruit. It may be used with fruit as a breakfast cereal or as a dessert for the noon or evening meal. When you learn to make custards, you can make a very wholesome dessert by serving cooked rice with custard.

What is a fireless cooker? Is it really possible to cook foods without any fire? Yes, it is, provided the foods are first heated until they are very hot. Then, if they are placed immediately in a device known as a fireless cooker, they will continue to remain hot and to cook.

How materials can be kept hot without a fire is shown in the following :

Experiment 5: *To show how hot materials may be kept hot without a fire.*

(a) Use two measuring cups that are alike. Have ready (1) a kettle containing boiling water, (2) an earthenware bowl with a plate to cover it, and (3) a chemical thermometer, preferably two.

Fill each cup half full of boiling water. Immediately place one cup containing water in the earthenware bowl and cover the bowl with the plate. Let the other cup containing water remain uncovered and exposed to the air. Note the time. Let the cups remain for 15 minutes. Then uncover the bowl; at once insert a thermometer in the water in the cup, holding the bulb of the thermometer so that it does not rest on the bottom of the cup. Record the temperature. Then take and record the temperature of the water in the other cup. If you have two thermometers, the temperature of the water in each cup should be taken at the same time.

(b) What is the difference in the temperatures of the water in the two cups?

(c) What prevented the heat from escaping as rapidly from the water in one cup as from the water in the other cup?

A fireless cooker consists of a box lined with some material that does not allow the heat to pass through it rapidly. A

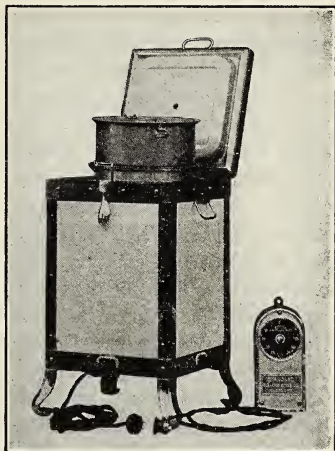
covered kettle containing hot food is placed in the box. The box is then covered. The hot food keeps hot for several hours.

Electric fireless cookers are very efficient. (See Figure 22.) The food is placed *cold* in the cooker. The cooker is closed and the electricity is turned on until the food is heated. Then without opening the cooker, the current is turned off and the hot food continues to remain hot and to cook.

A simple fireless cooker may be made at home or at school. In these fireless cookers, cereals and some other foods can be successfully cooked.

What are some points to observe in using a fireless cooker? 1. *When the cooker is not in use, keep the lid open.* This is very important. A peculiar taste that foods sometimes have when cooked in a fireless cooker is invariably due to leaving the lid closed when the cooker is not in use.

2. Use less water than for surface cooking because practically no evaporation takes place after the food



Standard Electric Stove Co.

FIGURE 22. AN ELECTRIC FIRELESS COOKER

The pans of this cooker are shown lifted above the surface of the well. Note that more than one pan may be placed in the well at one time.

The heater in the bottom of the cooker makes it unnecessary to heat food before placing it in the cooker.

The device shown at the right is an automatic clock. This may be set to the number of minutes it is desired to use the current. When the clock automatically shuts off, a second heater using only a small quantity of electricity keeps the food at a temperature of 175° F

is placed in the fireless cooker. For breakfast cereals, use about $\frac{5}{8}$ as much water for fireless cooking as for surface cooking.

3. Unless an electric fireless cooker is used, heat the food thoroughly before placing it in the cooker. Then place the food *at once* into the well of the cooker.

What is protein? How much is there in cereals? There is an old saying: "Bread is the staff of life." Perhaps bread was thought to be such an important food because grains from which breads are made contain a substance which may build the body. This body-building material found in cereals is called *protein*. *Protein* may be a new word to you. Remember *it is a material found in grains* (and other foods about which we shall learn later) *which builds the body*. Most grains contain from 10 to 12% protein. Oatmeal contains over 15%. There are many kinds of proteins. Some are of better quality than others. The proteins in cereals are of *intermediate quality*.

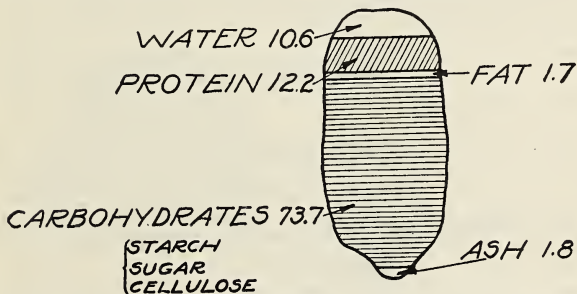
Why do cereals thicken when cooked? You will remember that when you cooked a breakfast cereal, it appeared to swell, absorbed the water you had added, and became pasty. This was due in part to the fact that the cereal contained starch. Let us again observe how starch acts when it is cooked in water. We shall experiment with cornstarch. Cornstarch, as the name indicates, is prepared from corn. Corn, like all grains, contains starch. When the starch is extracted from the other materials in the grain, we call it *cornstarch*. If the starch were removed from wheat, we should call it *wheat starch*. While the starches found in grains differ in certain respects, they have many properties that are alike.

Experiment 6 : *To show how starch acts when heated in water.*

(a) In a small saucepan or enamel custard cup, put 1 teaspoon of cornstarch and $\frac{1}{4}$ cup of cold water. Mix well and set aside for a few minutes. Does the starch settle to the bottom of the pan? Is starch soluble in cold water? How do you know?

(b) Stir again and heat the mixture until it becomes thick. With a spoon take out a small quantity of the material. Then feel of it between your thumb and first finger. How does the mixture feel?

(c) Note how thick or stiff the mixture is. Then set aside to cool. The cooling may be hastened by placing the utensil holding the starch mixture in cold water. When the mixture is cold, note how stiff it is. How does the stiffness of the cold and hot mixture compare?



Redrawn from U. S. Department of Agriculture Chart

FIGURE 23. THE COMPOSITION OF A WHEAT GRAIN

Note that wheat contains *water*. Does it seem strange that a dry substance like wheat contains water? The chemist finds water in all foods.

Wheat contains *proteins* — the body-building substances.

Are you surprised that wheat contains *fat*? We think of greasy-feeling foods like butter and bacon as containing much fat. Many foods which do not feel greasy contain a small quantity of fat.

Note that wheat is about three fourths *carbohydrates*. This term may seem new to you, but you already know three substances which it embraces. When you come across this word in studying about foods, remember that it is a term including sugar, starch, cellulose, and similar materials.

Wheat contains *ash*. Ash is another name for *mineral matter*. Mineral matter is often called ash because the ashes left when a food burns are mineral matter.

There is much starch in cereals. *Many of the uncooked cereals are about two thirds starch.*

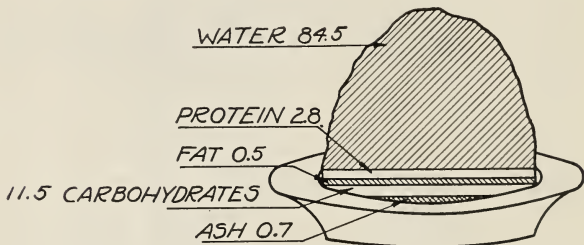
What is the percentage composition of food? We have

learned that cereals contain *cellulose*, *proteins*, and *starch*. Do cereals contain anything else?

Look at Figure 23.

Does it seem strange that one small wheat grain contains at least five different materials? The percentages of materials in a food make up the *percentage composition of the food*.

Figure 24 shows the composition of a cooked cereal.



Redrawn from U. S. Department of Agriculture Chart

FIGURE 24. THE COMPOSITION OF COOKED OAT BREAKFAST CEREAL

Note that this cooked cereal is almost seven eighths water. Why does it contain about eight times as much as the uncooked food? Note also the difference in the quantity of carbohydrates.

What are foodstuffs? Each of the materials contained in rolled oats has an important use in the body. The body needs all these materials to make it strong and well. We call the nourishing materials of which food is composed the *foodstuffs*. One food authority has said that foodstuffs are the stuffs of which food is made. *Water is a foodstuff. Protein is a foodstuff. Fat also is a foodstuff, as are carbohydrates, mineral matter, and vitamins.* Many foods, like cereals, contain all the foodstuffs. A few foods, like lard and sugar, contain but one foodstuff each. (What foodstuff is present in sugar? in lard?)

In what foodstuffs are breakfast cereals rich? A chemist finds that uncooked cereals made from oats contain:

Water	7.8%
Proteins	16.5
Fats	7.3
Carbohydrates	66.5
Ash or mineral matter	1.9
Total	100.0%

This shows that there are more carbohydrates than any other foodstuff in breakfast cereals. However, when cooked, water is absorbed and the proportion of carbohydrates is less. Cooked breakfast cereals contain over 10%.

The material next highest in percentage is protein. The amount of protein is very much less than that of carbohydrates. However, there is no natural food containing as much as 66% protein but there are foods containing 25 to 30% protein. We therefore consider breakfast cereals only moderately rich in protein. Moreover, cereal proteins are not of excellent quality.

There are many foods containing much more fat or oil than do breakfast cereals. We do not consider breakfast cereals rich in fat.

Breakfast cereals contain less of ash or mineral matter than of any of the other four foodstuffs. Nevertheless, we say *breakfast cereals*, especially those made from whole grains, *are rich in ash, because in comparison with the amount of ash in other foods, the percentage in breakfast cereals is high.* Many foods contain less than 1% ash. A food containing about 1% ash is usually said to be rich in ash. *We consider cooked and uncooked breakfast cereals rich in carbohydrates. Those breakfast foods made from whole grains are rich also in ash or mineral matter.*

Does the chemist's analysis tell all about the composition of foods? We learned that there were vitamins in fruit, existing in minute quantity and that not all fruits contain the same kind or amount of vitamins. There are vitamins in many other foods. By chemical analysis and by feeding white rats and other animals certain foods and carefully noting the way they

develop, scientists are able to determine whether or not the foods fed to them contain vitamins. Most whole grains contain at least one kind of vitamin, vitamin B. Wheat germ is especially rich in vitamins B and PP.

How do foodstuffs nourish the body? Our bodies need a fresh supply of food every day. Some part of the body is wearing away all the time. Certain foodstuffs *build up and repair* the worn parts.

We move, we exercise, we work. We can do these things partly because we eat certain foods. There are foodstuffs that give *energy* to the body, that is, they *help make it possible for the body to do work*.

We know that even on a very cold day there are certain parts of the body that are very warm. Our bodies are warm because some of the foodstuffs contained in the foods we eat are very slowly "burning" or uniting with oxygen in the body. The same foodstuffs that give the body energy, give it *heat*. Heat is energy.

Blood is flowing in the body, air is breathed in and carbon dioxide breathed out of the body, food is digested in the body. There are many processes such as blood circulation, breathing, and digestion constantly going on in the body. Certain foodstuffs help to *regulate body processes*.

From the illustrations of white rats given on pages 2 and 66, we see there are materials in foods that make the animals grow and keep healthy. These materials make the human body also grow and keep healthy.

Foods nourish the body by

1. Building and repairing it.
2. Giving it energy or heat.
3. Regulating body processes.
4. Making it grow and keeping it healthy.

Some of the foodstuffs have only one of these uses in the body. Other foodstuffs have two or more uses. In the appendix,

page 585, a list of the foodstuffs and what each does in the body is given. As you study about foods refer to this list often so that you may learn the use of each foodstuff in the body.

SUMMARY

Cereals are the *seeds of grasses*. On the outside of each cereal or grain are several coats of *bran*. Bran is a tough substance consisting largely of cellulose.

Buying breakfast cereals:

1. Uncooked or partially cooked — cost less; better for young children; require work to prepare at home.
2. Ready-to-eat — cost more; require no work to prepare at home.
3. Bulk cereals — cost less; not so clean, but sterilized by cooking.
4. Package cereals — cost more; clean.

Cook cereals thoroughly to soften cellulose and make them taste good.

Kinds of rice:

1. White or polished — outer coverings removed; mineral matter and vitamins discarded.
2. Brown or natural — only very tough covering removed; more mineral matter and vitamins retained.

Foodstuffs are the nourishing materials contained in foods.

Breakfast cereals contain all the foodstuffs:

1. Proteins, of intermediate quality
2. Carbohydrates
 - a. starch
 - b. sugar
 - c. cellulose
3. Fat
4. Mineral matter or ash
5. Water
6. Vitamin B in whole grains; vitamins B and PP in germ

Breakfast cereals are rich in *carbohydrates*.

Those made from whole grains are rich in *mineral matter* and *vitamin B*. They contain only a small percentage of fat and of water and a moderate amount of proteins.

REVIEW QUESTIONS AND EXERCISES

Some of the following statements are true and some are false. Read each statement very carefully and decide whether it is true or false. On a

piece of paper, or in your notebook, put the numbers corresponding to the statements. After each number write the word True or the word False.

1. Uncooked breakfast cereals are dry foods.
2. The cellulose in cereals makes them tough.
3. Use home-cooked cereals for very young children.
4. Brown rice contains less vitamins and mineral matter than white rice.
5. Cereals should be cooked in part directly over a flame.
6. Cereals put up in packages cost less than those sold in bulk.
7. Rice polishings are rich in vitamin B.
8. More water is used in cooking rice in a double boiler than in boiling it.
9. The more coats removed from a grain the less mineral matter and vitamins the grain contains.
10. Keep the lid of a fireless cooker open when not in use.

Copy the following statements, writing a word, number, or letter in place of each blank.

1. Breakfast cereals are about $\frac{2}{3}$ ____.
2. The proteins in breakfast cereals are of ____ quality.
3. Three kinds of carbohydrates are ____, ____, and ____.
4. Uncooked cereals contain more ____ than any other substance.
5. Mineral matter is also called ____.

HOME WORK

1. For each morning of one week, plan breakfast cereals suitable for use in your home.
2. Cook breakfast cereals at least twice during the week. (If you want school credit for this work, take a report to school, signed as suggested on page 30.)
3. Examine the advertisements of magazines. If you find any statements about breakfast cereals in which the composition or food value of the cereal is mentioned, bring them to class. Discuss the claims made by breakfast-cereal manufacturers.

CHAPTER VII

WHAT SHALL WE DRINK FOR BREAKFAST?

Can you answer these questions? If not, look for the answers as you study this chapter.

1. How much milk do you drink each day?
2. How much milk a day should every boy and girl drink?
3. Give some reasons why milk is needed by every boy and girl.
4. What is cream? How does it differ from milk?
5. Is milk merely a beverage or thirst quencher? How do you know?
6. Give at least two reasons why you should not drink coffee or tea.
7. What is meant by whole milk?
8. If you are sent to market to buy tea for the older members of your family, who prefer the beverage served with cream, what kind of tea leaves would you buy?
9. What is filtered coffee? boiled coffee?

Why is it wise to use milk for breakfast? *One quart of milk should be consumed by every child and every boy and girl of school age every day!* This statement is based on some scientific experiments tried out on twenty-one healthy, normal children ranging in age from three to thirteen years.¹

These children were given different amounts of milk to drink in addition to other wholesome foods. The quantity of milk varied from a half pint to a quart and a half daily. Milk is rich in a kind of mineral called lime or calcium.² Calcium is very necessary to build the bones, teeth, and other parts of

¹ *Note to the Teacher:* An account of these experiments may be found in the *Journal of Biological Chemistry*, volume 53, page 375; the *Journal of Home Economics*, volume xiv, page 413.

² Calcium is an element found in lime.

the body. Look at Figures 25 and 26. If a boy or girl is not given enough calcium, his or her body will fail to develop as it should. If you want your bones, teeth, and your whole body to be well and strong, you must have plenty of calcium.

The children given the milk to drink were carefully examined to find out whether it furnished sufficient calcium to keep them



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A

B

FIGURE 25. A, WHITE RAT WHOSE FOOD LACKED CALCIUM; B, WHITE RAT WHOSE FOOD WAS RICH IN CALCIUM

The healthy, strong rat with fine fur and bright eyes grew as he should because his food contained everything needed to nourish him. The sick rat was fed otherwise good food which did not contain enough calcium.

in good condition. From the results of 139 experiments, it was found that those who drank one quart of milk a day were healthiest.

Are you using this amount of milk every day? Are your sisters and brothers drinking a quart? If not, explain to your mother and father the need of a quart a day. Tell them that the fact that a quart of milk is needed each day is not based on the *opinion* of any doctor or teacher. It is based on *actual fact*. (See Figure 27.)

If, then, a quart of milk is to be used each day, some of this amount should be used for breakfast. Let us see how this can be done.

What beverages should every boy and girl drink? The usual breakfast menu contains something to drink. With drier foods, such as breakfast cereals, bread, or toast, something moist is pleasing. Some beverages, such as tea and coffee, are stimulants which contain no nourishment. Milk is not only a wholesome



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FIGURE 26. SKELETONS OF THE TWO RATS SHOWN IN FIGURE 25

This shows plainly how much larger the rat which had enough calcium grew. Curvature of the spine, deformed ribs, and enlarged joints were caused by the diet lacking in calcium.

drink but a food, as you have just learned. For breakfast you may want to drink one glass of plain milk as your beverage. In case the weather is cold, you will enjoy, perhaps, a hot drink. Cocoa made with milk is a wholesome hot beverage. Let us see how this can be made:



National Dairy Council

FIGURE 27. THE DIFFERENCE MADE BY MILK

These dogs are of the same age. Both were fed the same food except that the large fine-looking dog had milk to drink and the other did not. Boys, girls, and grown-ups as well as dogs need milk.

COCOA FOR BREAKFAST

2 to 4 tablespoons cocoa

$\frac{1}{2}$ cup water

1 to 3 tablespoons sugar

4 cups milk

$\frac{1}{8}$ teaspoon salt

Lift the top part of a double boiler from the lower part. In the top part put the cocoa and water. Cook directly over the flame. When the mixture reaches the boiling point, turn the flame down so that it boils gently. Boil gently for 5 minutes.

Then add the sugar and milk. Put hot water in the lower part of the double boiler. (How much hot water should you add? See page 52.)

Place the upper part of the double boiler in the lower part. Let the mixture cook for at least 20 minutes. Add the salt. Just before serving, beat the mixture so as to break into bits the scum that forms on top of the beverage. Do not throw this scum away. It contains a nourishing substance. Yield: 6 *teacups*, each containing about $\frac{3}{4}$ of a measuring cup.

Variations. — *Less milk may be used.* When this is necessary, decrease the milk to 2 or 3 cups and increase the water to $2\frac{1}{2}$ or $1\frac{1}{2}$ cups. (There should be $4\frac{1}{2}$ cups of liquid.) Cocoa made with half milk and half water is not so nourishing, however, as when made with more milk. If you are to count on the milk in the cocoa as a part of your daily quart, it is well to use a greater quantity of milk than of water.

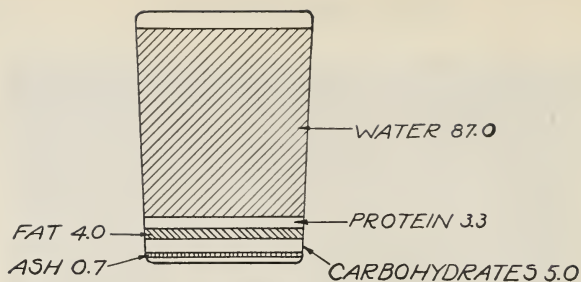
Cocoa or Chocolate for Party Refreshments. — For parties you may like a sweeter beverage. If so, use 4 *tablespoons of sugar*. When ready to serve, add $\frac{1}{2}$ teaspoon vanilla. If you wish chocolate, substitute for cocoa 1 *ounce of chocolate*, cut into bits. Cook the same as cocoa except that the mixture must be stirred constantly when directly over the flame. Flavor with vanilla.

For serving cocoa at a party you may desire to *garnish* or decorate the beverage. *Whipped cream* is a satisfactory garnish for cocoa. After the cocoa is poured into the serving cup, drop a spoonful of stiffly beaten whipped cream on top of the beverage. (Directions for whipping cream will be found on pages 443-444.)

One or two *marshmallows* may be used for garnishing each cup of cocoa. Add the marshmallows after the cocoa is poured into the cups.

What ingredients other than calcium make milk valuable? Study carefully Figure 28, and you will be able to answer this question.

What is top milk? whole milk? skim milk? Have you noticed that when a bottle of milk stands, the liquid at the top of the bottle is cream colored? This material not only looks different but has a different taste from the milk in the lower part of the bottle. This difference is due to the fact that the milk at the top of the bottle, which we call *top milk*, contains much more fat than the milk in the lower part of the bottle. When the milk was poured into the bottle, fat in the form of tiny balls or globules was distributed through the milk, but when the milk remained quiet for a time, many of the fat globules collected



Redrawn from U. S. Department of Agriculture Chart

FIGURE 28. COMPOSITION OF MILK

Although milk is seven eighths water, the remaining eighth contains valuable ingredients. Milk is prized for its *proteins*. The *ash* contains calcium and other minerals. Vitamins in whole milk are: A + + +, B + +, C +, D +, G + + +.¹



FIGURE 29. TWO QUARTS OF MILK

The average tumbler does not contain quite a half pint. A quart will fill about five glasses. Do you drink five glasses or the equivalent every day?

¹ See Note 1, page 37.

at the top of the bottle. Good milk contains from 3.5% to 4% fat.

By whirling milk in a machine the fat in milk can be more completely and more quickly separated from the liquid. *Cream* is prepared by separating the fat from milk. The product left after separating the fat from whole milk is known as *skim milk*. Milk from which no fat has been removed is called *whole milk*.

Why should you not drink coffee for breakfast? One quart of milk will fill five glasses. (See Figure 29.) If you are going to drink five glasses of milk each day, it is well, as previously stated, to start to drink the milk at breakfast. If you use milk or cocoa made with much milk for your breakfast beverage, you cannot comfortably drink coffee in addition to the milk or cocoa. *There is no place for coffee if you drink the quantity of milk that you should.*

In investigating the breakfasts of 35,000 children in 86 cities of the United States, it was found that when children drink coffee those children usually failed to drink any milk or drank too little.¹ *The drinking of coffee tends to crowd out the drinking of milk.*

There are some grown persons who find that they cannot sleep well during the night if they drink coffee or tea at the evening meal. The coffee or the tea excites them so that they do not readily go to sleep or do not sleep soundly. Coffee and tea usually have a greater exciting effect on boys and girls than upon older persons.

Coffee and tea contain no nourishing materials (except the cream and sugar added to them) but they do contain a stimulating material called *caffein* in coffee and *thein* in tea, and a bitter, undesirable substance called *tannin*. Milk, on the other hand, contains very nourishing substances. No boy or girl can afford to drink coffee or tea instead of milk.

¹ *Note to the Teacher:* See page 164 of *A Health Survey of 86 Cities* by the Research Division of the American Child Health Association.

SUMMARY

One quart of milk is needed each day by every girl or boy to supply:

1. Calcium and other minerals
2. Vitamins A + + +, B + +, C +, D +, and G + + + (see p. 37)
3. Proteins of excellent quality

Milk is the best source of calcium; calcium is very necessary for health.

Percentage composition of milk:

Water	87.0%
Proteins	3.3
Fat	4.0
Milk sugar	5.0
Ash	0.7
Total	100.0%

Milk and cocoa are wholesome beverages for girls and boys.

Coffee and tea are unwholesome beverages for girls and boys because they crowd out milk from the diet and contain injurious substances.

REVIEW QUESTIONS AND EXERCISES

Each of the following statements is completed in more than one way. Only one way is correct. Read each statement carefully. Decide which is the best word or phrase to complete it. Then copy the sentence completing it with that word or phrase.

1. One quart of milk measures (a) 3 glasses (b) 4 glasses (c) 5 glasses.
2. Milk is especially valuable because it contains (a) starch (b) calcium (c) cellulose.
3. The percentage of fat in milk is usually (a) 4 (b) 5 (c) 3.
4. Coffee contains an undesirable substance called (a) tannin (b) cellulose.
5. The best source of calcium is (a) carrot (b) spinach (c) milk.
6. The most wholesome hot beverage for girls and boys is (a) tea (b) coffee (c) cocoa.
7. Cook cocoa over the naked flame (a) before adding the sugar and milk (b) after adding the sugar and milk.
8. Milk contains at least (a) two (b) three (c) five kinds of vitamins.
9. Milk is about (a) $\frac{1}{2}$ (b) $\frac{3}{4}$ (c) $\frac{7}{8}$ water.
10. Whole milk contains (a) more fat (b) less fat than skim milk.

HOME WORK

1. Prepare cocoa for either the morning or the evening meal.
2. Many grown persons drink coffee or tea at least once a day. Although you should not drink either of these beverages, you can help your mother by making coffee or tea for the older members of your household. Let us find out how to buy and make coffee and tea.

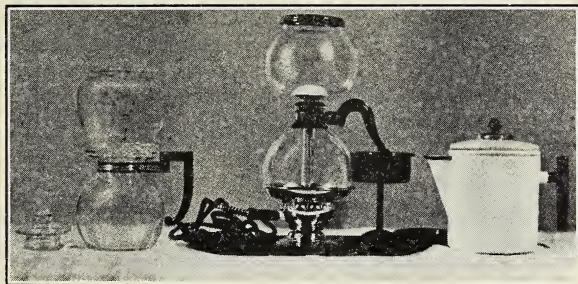


FIGURE 30. THREE KINDS OF COFFEE POTS

A, *drip coffee pot*. Notice the glass filter plate between the two bowls. Finely ground coffee and boiling water are placed in the upper bowl. The beverage filters through the glass plate into the lower bowl. To serve, remove the upper bowl and cover the lower bowl with the glass cover.

B, *vacuum coffee maker and electric stove*. The opening at the bottom of the upper bowl is covered by a filter. Boiling water is poured into the lower bowl and finely ground coffee is placed in the upper. When heat is applied to the lower bowl, the water rises and mixes with the coffee in the upper bowl. Turn off the heat and let the lower bowl cool. The cooling creates a vacuum, and the beverage is drawn into the lower bowl. To serve the coffee, remove the upper bowl and pour from the lower bowl.

D, *coffee percolator*. The device C is placed inside the pot D. Finely ground coffee is put in the upper part of C and covered with the perforated lid. Water is poured into the pot. Heat is applied. When the water boils, it rises through the slender tube of C, sprays down over the coffee and then drops into the lower part of the pot. It should percolate only 5 to 7 minutes.

For making coffee in any of these utensils, use 2 level tablespoons or 1 heaping tablespoon finely ground coffee for each measuring cup of water.

BOILED COFFEE WITH EGG

When coffee is boiled more tannin is dissolved than when it is heated slightly below the boiling point. Moreover, more of the flavoring materials are lost when coffee is boiled and it is difficult to make clear coffee by the boiled method. However, many families follow this method of making coffee. For boiled coffee use medium or coarsely ground coffee. The amount of coffee measured will depend upon the number of persons for whom you are making the coffee. For each person, plan for one cup of the beverage. For each cup put into the coffee pot :

1 heaping tablespoon ground coffee

1 tablespoon cold water (or enough water to moisten the coffee)

Bit of egg shell or a little egg white (1 egg shell or $\frac{1}{2}$ egg white is sufficient for 4 heaping tablespoons of ground coffee.)

1 cup boiling water

Into a clean coffee pot put the coffee, cold water, and egg. Stir to mix these materials. Then add the boiling water.

Place the pot over a flame and heat until the coffee just reaches the boiling point. *Do not boil the beverage.*

Now remove the pot from the flame. If you lift up the lid of the coffee pot, you will see that some of the grounds are clinging to the coffee pot at the surface of the liquid. Also, there may be some coffee grounds in the spout of the pot. To rinse these grounds from the upper part of the coffee pot, pour out about a cup of coffee. Then immediately pour it back into the pot. Now add a little cold water — about a tablespoon for each cup of coffee. Cover the pot and let it remain for about 5 minutes on the back of the stove or in a warm place so the grounds will settle.

Variations. — *Cold water* may be used instead of boiling water. When cold water is used, *heat the beverage only until the boiling point is reached.* Then remove from the flame. Continue as when making the coffee with boiling water. When coffee is made in *large quantity for a picnic or party*, tie the coffee loosely in a clean cloth bag.

Buying coffee. — Since coffee is prized for its flavor and the flavor deteriorates rapidly after the coffee is ground, the question arises as to whether it is more satisfactory to buy coffee ground or in whole beans. Shall it be bought in metal containers or in paper bags?

To obtain the best results, the purchaser should bear in mind the following suggestions:

(1) If coffee in paper bags is purchased, buy it from a dealer who sells so much coffee that his supply is frequently replenished.

(2) If you have a wall coffee grinder, buy coffee in bean form (provided the beans are freshly roasted) and grind it each time coffee is made.

(3) If convenience rather than expense is considered, buy coffee sealed in vacuum cans, *i.e.*, cans opened with a key.

(4) Do not buy more than a week's supply. *One pound of coffee makes about 40 cups.*

(5) If you buy ground coffee, be sure to state whether you wish it pulverized, percolator ground, or medium ground.

As the flavor of coffee becomes less pleasing with age, some dealers use dated labels for the guidance of their customers. If the date indicates the time of roasting (not the time of removal from the warehouse) it may prove helpful.

What can you learn as you wash the coffee pot? If you examine the grounds from the bottom of the coffee pot in which you made boiled coffee, you may discover why egg was used. Some of the coffee grounds appear to be lumped together. The egg white upon being heated solidifies. As this takes place, the coffee grounds in contact with the bit of egg are fastened together. These masses of coffee grounds are heavier than separate coffee grounds; hence they sink readily to the bottom of the pot when the coffee is set aside to settle. Not the egg shell, but the bit of white clinging to it helps the coffee grounds to settle. It is thought that the egg not only clears the coffee, but improves the flavor.

When should a coffee pot be washed? A coffee pot should be washed as any other cooking utensil — each time it is used. Coffee or coffee grounds should not stand in the pot from one meal to the next. If any clear coffee is left, it may be poured into

a dish and used for spice cakes or other desserts. A coffee pot should be washed thoroughly. The spout should be examined carefully to see that it is clean. It is sometimes necessary to use scouring soap on the inside of a coffee pot.

What kind of tea should one use? The two most popular types of tea are black and green. *Black tea leaves are fermented before drying.* Well-known black teas are Flowery Pekoe, Orange Pekoe, and English Breakfast. Darjeeling is a fine black tea grown in India. *Green tea leaves are dried without first fermenting.* Gunpowder, Imperial, and Young Hyson are popular green teas. Those who are particular about the flavor of tea think that only black teas, especially those produced in India, are suitable to serve with cream.

TEA

For each cupful of tea desired, use:

$\frac{1}{4}$ to 1 teaspoon tea leaves
1 cup boiling water

Use an earthenware or granite teapot. In order to have the beverage hot, the teapot should be hot. Heat it by pouring boiling water in it. Pour out the water. Add the tea leaves to the pot or put them in a tea ball or tie in a cheese cloth bag. Then add the boiling water. Cover the pot and let it stand in a warm place for 3 to 5 minutes.

At the end of this time, the tea leaves should be strained out of the water. This is done to prevent much of the injurious substance being dissolved in the water.

If the tea leaves have been placed in the tea ball or in the bag, the leaves can very easily be removed from the beverage. If the tea leaves have been placed loosely in the tea pot, the beverage may be strained into a hot receptacle. Some find it convenient to make the tea in a sauce pan and then strain it into a tea pot. If this plan is followed, care should be taken to have the sauce pan and tea pot hot so the beverage will not become too cool before it is served.

Tea is usually served with cream or top milk and sugar, or with sliced lemon and sugar.

CHAPTER VIII

TOAST AND OTHER BREAKFAST BREADS

Can you answer these questions? If not, look for the answers as you study this chapter.

1. What makes a slice of bread curl up when it is being toasted?
2. Why is baking powder generally used in making muffins?
3. What ingredients do muffins contain?
4. Why was Graham flour so called?
5. Does whole-wheat flour contain all parts of the wheat grains?
6. Which costs less a pound — flour bought in small packages or in large sacks?
7. What makes eggs foam when they are beaten?
8. How full should muffin pans be filled? Why?
9. What is the boiling point of water? What is the lowest baking temperature commonly used? the highest baking temperature?
10. How can you tell when muffins are ready to be taken from the oven?

Why does toast taste different from bread? Toast not only looks different from bread but tastes different. When bread is heated so that it becomes golden brown on the outside, changes take place in the composition of the bread. One of the materials in bread which changes is the starch. Some of the starch in bread is changed to a substance which is slightly sweet in taste. This is one reason why we like the taste of toast. Then too, many persons like toast because it is crisp.

Besides tasting good, toast is perhaps the most wholesome of the warm breads. It is believed that toast is more readily digested than such warm breads as muffins, biscuits, or griddle cakes.

How is bread toasted? Perhaps you have toast often at your home. Some families like it well enough to eat it every morning

for breakfast. This is a good way to use bread which has become too hard to serve plain. If toast is often served for breakfast at your home, would it not be well for you to learn to make perfect toast? Your mother would doubtless be very glad of your help.

TOAST

Cut bread into slices of even thickness from $\frac{1}{4}$ to $\frac{1}{2}$ inch.

Put the bread on a baking sheet or pie pan. Bread may be toasted in the baking oven or broiling oven. If toast is to be crisp, it should be dried out slowly. The *baking oven* is the better place to dry it out. If you have a heat-regulated oven, set the temperature wheel to 400° F. Put the bread in the oven. If the bread is moist, it may curl up if it is dried more rapidly on one side than the other. To keep the slices flat, turn them often. When the bread is evenly browned, it should be removed from the oven.

Toast may be made more quickly in the *broiling oven*. Place the slices of toast on the rack of the broiling tray. Insert the tray in the broiling oven. Keep the door of the broiling oven open. Watch the bread, lest it burn.

How should toast be served? Toast should always be served hot. In order to keep it hot, it is a good plan to put the hot toast on a hot plate and then cover the slices with a clean napkin. While the bread is toasting, a serving plate may be heated in the warming oven, in the lower part of the broiling oven, or other suitable place. The plate should not be put in a very hot place or it may crack or break.

Some people like to spread butter on toast as soon as it comes from the oven. The butter melts and soaks into the toast. Such toast is called *buttered toast*.

What makes muffins light? Have you ever noticed that muffins, cakes, and many other foods containing flour are full of little holes? We say that because such foods are full of holes they are light. Muffins or cakes which are heavy are not so appetizing or so wholesome as light or porous foods. What is it that makes muffins and cakes porous? There are several materials which

may be used to do this. One material that is very commonly used is *baking powder*.

Baking powder is a white powdered substance. Although it looks somewhat like flour, it is very different from flour. Let us learn what we can about baking powder :

Experiment 7: *To discover why baking powder makes muffins and cakes light.*

(a) In a tumbler or glass measuring cup put $\frac{1}{2}$ teaspoon of baking powder. Add 1 tablespoon of hot water. Stir. What is forming and rising to the top?

(b) Let the mixture stand a few minutes. Does the surface of the mixture look the same as it did when the hot water was first added to the baking powder?

(c) In making muffins why should the mixture be placed in the oven as soon as possible after mixing the moisture with the baking powder?

The bubbles which appeared when hot water was added to the baking powder were caused by a gas forming. When baking powder is moistened and heated, a gas, whose name you may have heard, is formed. This gas is called *carbon dioxide*.

When muffins are made, baking powder is usually added to the flour. The mixture of flour and baking powder is moistened with milk or other liquid materials. Next the mixture is put into the oven. The heat of the oven then heats the muffin mixture. The baking powder in the muffin mixture is thus moistened and heated.

You have learned that when baking powder is moistened and heated a gas is formed. Hence from the baking powder in the muffin mixture, a gas is formed. This gas rises through the muffin mixture. As it rises it lifts the particles of flour and other materials and makes the muffins porous and light. The heat of the oven then dries the mixture, hardens the egg, and makes other changes in it so that when baked, the muffins are firm but light.

What kind of flour shall we use for muffins? At the market or grocery store, we find different kinds of flour. One kind of

flour is suitable for making bread to which yeast is added. This is called *bread flour*. Another kind is suitable for making muffins, cakes, and other baked foods in which baking powder is used. This is called *pastry flour*. Let us see what we can learn about these two kinds of flour :

Experiment 8 : *To learn to tell the difference between bread flour and pastry flour.*

(a) Take a small bit of fine white flour between your thumb and finger. Does the flour feel soft, *i.e.*, free from grit? If so, it is probably pastry flour.

(b) Try another test on this flour to make sure it is pastry flour. Take a small amount of flour in the palm of your hand. Close your hand tightly, pressing your fingers on the flour. Now open your fingers. Does most of the flour remain in a mass, so that the impression of the fingers is left on the flour? If so, you have an additional proof that the flour is pastry flour.

(c) Repeat (a), using a flour which is cream-colored. Does the flour feel gritty? If so, it is probably bread flour.

(d) Repeat (b), testing the kind of flour used in (c). When you open your hand, do the particles of flour fall apart so that there is no impression of your fingers on the flour? If so, you have an additional proof that the flour is bread flour.

(e) State two tests for pastry flour.

(f) State two tests for bread flour.

(g) What is the difference in the color of pastry and bread flour?

How should flour be selected at the store? There are several well-known brands of flour, both pastry and bread, any of which will be quite satisfactory for home use. Since most mills manufacture both pastry and bread flour, it is important for you to look carefully at the label on the sack when delivery is made. Pastry flour is sometimes called *soft wheat flour*. Some persons think that pastry flour is used only for cakes. Pastry flour may be used for almost all flour mixtures which do not contain yeast. It is advisable to use pastry flour for muffins, baking-powder biscuits, corn bread, cakes, and pies.

How much flour should one buy? Although flour is put up in small bags or packages it costs less a pound when bought in bags weighing at least $24\frac{1}{2}$ pounds. A bag of that weight is known as $\frac{1}{8}$ barrel. Flour may be bought in:

$24\frac{1}{2}$ pound bags ($\frac{1}{8}$ barrel)	98 pound bags ($\frac{1}{2}$ barrel)
49 pound bags ($\frac{1}{4}$ barrel)	196 pounds (one barrel)

Although a barrel of flour costs less a pound than a fraction of a barrel, it is not always advisable to buy flour in barrel or half-barrel lots. The quantity of flour purchased at one time should depend upon the amount of baking done in the home and the means of storing the flour in the home. When flour comes from the market, the sack should be emptied into a tin box or canister. The flour container should have a tightly fitting cover. The tightly covered tin can prevents mice and some insects from getting into the flour. The flour canisters in most homes do not hold more than 25 or 50 pounds of flour.

Even if flour is kept in a tightly covered canister, small insects known as *weevils* may appear in it. For this reason it is well not to buy flour in such large quantities that it will last for a long time. Weevils in flour develop more rapidly in warm weather than in cold. This makes it advisable in some localities to buy flour in smaller quantity in the summer than in the winter.

What are the grades of flour? Grains of wheat look very different from white flour. When wheat is made into white flour, the outer covering, which you learned is called *bran*, is removed. The part of the grain from which the young plant springs when wheat grains are sown in the ground is removed also. This portion of the grain is called the *germ* or *embryo*. (See Figure 19, page 50.)

When the coats of bran and the germ are removed by many grindings, siftings, and separations, the middle portion of the grain is left. This middle part is crushed and passed through closely meshed silk. From the various siftings, different

streams of flour are obtained; these streams differ from each other in quality. By blending different streams, the miller produces different grades of white flour.

The grades of flour in common use are *short patent*, *long patent*, *straight flour*, *first clear*, and *second clear*. Short patent is the highest grade. This contains less proteins forming gluten than the lower grades of flour, but the gluten is more elastic. Second clear is the lowest grade of flour.

What is Graham flour? whole-wheat flour? Many years ago there lived in this country a minister whose name was Sylvester Graham. He became interested in food which would satisfy peoples' appetites so that there would be no craving for alcoholic drinks. One of the foods he advocated was bread made from the whole grain. That is, in the manufacture of flour instead of discarding the bran and germ from wheat, these parts were retained and the whole grain crushed into flour. Flour made from the whole grain was named for Mr. Graham.

Because the whole grain is used in the manufacture of Graham flour, this flour differs in composition from fine white or patent flour. Graham flour is richer than fine white flour in mineral matter, proteins, fats, cellulose, and vitamins.

In buying Graham flour one should remember that it will not keep so well as fine white flour. This is due to the fact that the germ of the grain spoils more readily than the other parts.

According to government standards "whole-wheat flour, entire-wheat flour, Graham flour is the product made by grinding wheat and containing in their natural proportions all the constituents of the cleaned grain." Hence these names refer to the same flour although they did not formerly.

How are the dry ingredients of muffins measured and mixed? You doubtless know that flour is used in making muffins. This material is used in greater quantity than any other in a muffin mixture. It is important that all the ingredients be measured accurately. Let us learn how to measure flour:

Experiment 9: To learn how to measure fine flour.

(a) With a measuring cup, scoop out of the pastry-flour canister a cup of flour. Level off the flour with a knife.

Now pour this level cup of flour into a sifter. Sift the flour into a pan or bowl, taking care that no flour falls outside the pan or bowl while it is being sifted.

With a tablespoon fill the measuring cup with the sifted flour. Again level off the cup with a knife. Is there more than enough flour to fill the cup?

(b) By means of a tablespoon measure the flour which you do not put into the cup. How many tablespoons does it measure?

When flour is placed in a sack or canister, the fine grains become solidly packed. When the flour is sifted the grains are loosened.

In order to measure flour accurately it has been found advisable to sift it first. The particles are then loosened. Then with a spoon, the flour should be put into a measuring cup. The flour should be leveled off with a knife as suggested on page 23. (See Figure 11.)

We consider flour a dry ingredient. Baking powder and salt are other dry ingredients usually put into muffins. Although baking powder is a finely powdered substance, we do not find it necessary to sift it before measuring, but we *stir* the powder in the can before measuring it. After measuring, add the baking powder to the flour.

Measure the salt—without sifting or stirring before measuring. Add this also to the flour and baking powder mixture. The plan of putting together the dry ingredients of a baked flour mixture is generally followed in making muffins and similar foods.

How are the remaining ingredients mixed with the dry materials? If you turn to the recipe for muffins on page 88, you will see that in addition to these dry ingredients there are eggs, milk, sugar, and butter. These must be *mixed quickly* with the dry ingredients *to prevent tunnels forming*. Before mixing eggs with other materials, we break the egg into a bowl

and then beat it with a fork, or an *egg beater*, until the white and yolk are perfectly blended and the mixture is full of bubbles.

As you beat the egg, note that bubbles form and the egg appears to increase in quantity. Bubbles form because *air is mixed with the egg*. The increase in size of the egg is due to the addition of air.

Eggs in a flour mixture help to hold the particles of flour and other ingredients together. They may also help to make a mixture light or porous. This is because the air inclosed in the egg expands slightly when it is heated in the oven. The lightness of muffins, however, is due mostly to the baking powder.

If the egg is beaten in the mixing bowl in which all the ingredients are to be mixed, the *milk* may be added to the beaten egg.¹

The *butter* or butter substitute should be melted in order to mix it perfectly with the other ingredients. There are ways, other than melting, of mixing butter with other ingredients, but melting is the easiest way and is satisfactory for most flour mixtures. *In melting butter* use as small a pan as possible, in order to avoid wasting more fat than necessary in scraping it from the pan. A tin or an aluminum measuring cup may be used.

To melt butter, heat it (1) on the surface burner, turned low, (2) on top of the oven, or (3) in the oven. Let the butter heat only long enough to melt it.

What are all the steps in mixing muffins?

1. Sift some flour; measure it. Measure the baking powder and salt. Add these to the flour.
2. Beat the egg, measure the milk and add it to the egg. Add the sugar.
3. Measure and melt the butter. Add it to the egg mixture.

¹ The dry ingredients are sometimes sifted *first* into the mixing bowl. Then the egg, milk, sugar, and melted fat added to the dry ingredients. If the egg is beaten in the mixing bowl, there is no extra dish soiled in beating it. It seems more satisfactory also to sift the dry ingredients into the egg mixture. In this way you gradually thicken the liquid materials instead of gradually thinning the dry ingredients.

4. Sift the dry ingredients, *i.e.*, the flour, baking powder, and salt, into the egg mixture.

5. Beat the mixture only enough to dampen the dry ingredients, making *not more than 25 strokes of the spoon*. The batter should look lumpy.

How should pans be greased? Butter is one of our most expensive foods. It is well to save butter as much as possible. If you have melted the butter in a small pan or in a measuring cup, after pouring it out, wipe out the pan or cup with a bit of clean paper. Then rub the piece of buttered paper over the inside of the muffin cups. If there is not enough fat remaining in the saucepan or measuring cup to grease the pan, you may have to put a little more on the paper to finish greasing the pan. Usually, the extra fat is unnecessary. Only a thin film of fat is needed on the muffin pans. Many pupils waste butter by using too much in greasing a pan.

How much batter should be put in the muffin cups? Did you ever clean an oven after some food had run over during baking? If you have ever had this experience, you will want to learn how to prevent baked foods from running over. Then, too, it is wasteful to let foods run over.

Since muffins rise during baking, the muffin cups must not be filled to the top. Muffin cups should be filled not more than $\frac{2}{3}$ full of batter. If there is not enough batter for all the cups, add water to those which have none.

How hot should the oven be? A large class of girls were asked to heat their ovens to a temperature which, by the *feeling*, they considered *medium*. The girls did so. When the exact temperatures of the ovens were measured by means of a thermometer, the temperatures were found to vary from 145° F. to 420° F.¹ This test shows that the common method of opening the oven door and holding the hand in the oven is an inaccurate

¹F. is the abbreviation for *Fahrenheit*. Fahrenheit is the temperature scale commonly used on household thermometers. On this temperature scale water freezes at 32 degrees and boils at 212 degrees.

way of judging the temperature of an oven. A person who has had a good deal of practice in testing an oven in this way may find it somewhat satisfactory. But if one is learning to judge oven temperatures, this method is unreliable.

A more accurate method of heating an oven to the desired temperature is to use a portable *oven thermometer* or a device called an *oven heat regulator*. A portable oven thermometer is placed inside the oven. Unless there is glass in the oven door, the thermometer inside the oven is somewhat difficult to read. It is necessary to read a portable oven thermometer at once upon opening the oven door. If the oven door is opened, the cooler air enters and the thermometer does not register the true temperature of the oven.

Usually, unless the fuel is adjusted, the temperature of an oven increases. It is necessary to watch the thermometer often so as to regulate the gas or other fuel to keep the oven temperature constant.

When an oven has a heat-regulating device, the device is set at any desired oven temperature. When the oven reaches the desired temperature, the oven remains at that temperature. It is unnecessary to watch the temperature or to regulate the fuel. *Oven temperatures vary from 250° F. to 550° F.* The proper oven temperature for muffins is 400° F.

If one does not have an oven thermometer or a heat-regulating oven, perhaps the best way to learn to determine the temperature of the oven is to note the length of time required to brown flour. To do this, proceed as follows:

Experiment 10: *To estimate the temperature of an oven.*

(a) After lighting the oven, let it heat for at least 15 minutes. Put a small quantity of flour — about $\frac{1}{2}$ teaspoon — on a piece of paper. Place this in the oven as near the center as possible. Close the door, immediately noting the time. In 5 minutes open the oven door. What is the color of the flour — straw color? light brown? golden brown? dark brown?

If the flour or paper is straw color, the oven is not very hot. We say it is a *slow oven*.

If the flour is light brown, we say the oven is *medium*.

If the flour is golden brown, we say the oven is *hot*.

If the flour is dark brown, the oven is *very hot*.

How can we tell when flour mixtures are done? When you put a flour mixture into the oven, note the time. Many of the most reliable recipes will not only give the temperature for baking, but the length of time required for baking. If you have no oven regulator and if the time for baking is not specified, the following tests will help you.

1. *Note the color.* Most persons like baked mixtures a golden brown.

2. Note whether the *mixture has shrunk from the pan*. When a batter is baked, it pulls away from the pan.

3. With the first finger, *gently touch* the surface of the baked food as near the center as possible. If the mixture is done, no impression will be left by the finger on the baked food. If the mixture is not done, the impression of the finger will be left on the food.

4. If the oven bakes as well on the bottom as on the top, the three tests just given are sufficient. In case there is any doubt about the center or bottom of the food, the following test may be applied: Insert a *wire skewer, knitting needle, or tooth pick* in the center of a baked food and then withdraw it. Run the thumb and first finger down the skewer or tooth pick. If bits of batter have clung to it, the batter is not cooked enough.

What shall be done with bread when it is taken from the oven? Let the bread stand two or three minutes in a place free from draft. It is well not to put a hot bread near an open window or door. Then with a spatula loosen the edges of the bread. If the bread still clings to the pan, it may be necessary to run the spatula underneath the bread.

If the bread is to be cooled before serving, place it on a cake cooler. If it is to be served hot, place it on a warm plate and cover it with a clean napkin.



STANDARD MUFFIN RECIPE

- 1 egg
- 1 cup milk
- 2 to 4 tablespoons sugar
- 2 to 4 tablespoons butter
- 2 cups all-purpose flour *or*
- 2½ cups cake flour
- 2 to 4 teaspoons baking powder¹
- ½ teaspoon salt

1. Sift some flour, then put it in a pint measuring cup. Add the measured baking powder and salt to the flour.

2. Break the egg into a mixing bowl. Beat it well. Add the milk and sugar.

3. Measure the fat. Melt it, then add it to the egg mixture. Mix.

4. Pour the dry ingredients into a sifter and sift them into the egg mixture. Beat only enough to dampen the dry ingredients, giving the mixture merely *25 strokes of the spoon*. The batter should look lumpy.

5. Pour into a greased muffin pan. Bake in a *hot oven* — 400° F. — for *25 minutes*. Yield: 12 medium-sized muffins.

Variation: Graham or Whole Wheat Muffins. — For 1 cup white flour, substitute 1 cup dark flour. Mix and bake as plain muffins except the dark flour is added without sifting after the white flour is added.

White flour used with Graham or whole-wheat makes the bread lighter and of finer texture than when the coarser flours are used without white flour.

¹ If alum phosphate (S. A. S. phosphate) baking powder is used, measure the smaller quantity; the greater quantity, if phosphate or tartrate baking powder is used. See pages 303, 305, and 309 for information about the kinds of baking powder.

CINNAMON BREAD

1 egg	2 or 4 teaspoons baking powder
$\frac{1}{4}$ to $\frac{1}{2}$ cup sugar	(See footnote, page 88.)
$\frac{3}{4}$ cup milk	2 cups soft wheat flour
3 tablespoons butter or substitute	(sift before measuring)
$\frac{1}{2}$ teaspoon salt	

Mix these ingredients in the same order as directed for the muffin recipe, page 88. Pour the batter into a greased pan. A pan about 9 inches square is desirable.

Then mix together:

2 tablespoons sugar $\frac{1}{2}$ teaspoon powdered cinnamon

Sprinkle this mixture on top of the batter. Bake in a *hot oven* — 400° F. — for 20 minutes.

After removing the bread from the oven, mark it into 16 squares (if a square pan has been used) by thrusting a fork straight down through it to the bottom of the pan. Then, with a spatula, loosen the pieces and break them apart. Place on a hot plate. Cover with a napkin. Serve at once. Yield: 16 pieces.

SUMMARY

Toast has a sweet taste due to changes undergone by the starch when the bread is heated.

To make toast — slice bread evenly; dry both sides evenly.

Baking powder, when moistened and heated, forms a gas, carbon dioxide. This gas, rising through the flour mixture, makes the mixture light.

Kinds of flour:

1. *Pastry or soft wheat* — white, feels smooth.
2. *Bread or hard wheat* — creamy in color, feels gritty.
3. *Grades of white flour* — short patent, long patent, straight flour, first clear, second clear. Short patent, highest grade; second clear, lowest grade.
4. *Graham, whole-wheat, or entire-wheat* (different names for the same flour) — dark in color, coarse, made from whole grain.

Buying flour: Flour is cheaper in sacks weighing at least $24\frac{1}{2}$ pounds than in smaller sacks or packages.

Baking temperatures vary from 250° F. to 550° F.

Tests for sufficient baking:

1. Golden brown color
2. Shrinks from sides of pan
3. No impression left by touching
4. No batter adheres to knitting needle or skewer thrust into the center.

REVIEW QUESTIONS AND EXERCISES

1. What kind of flour is creamy in color and gritty?
2. In making what kind of bread should this flour be used?
3. How much of the wheat grain is used in making whole-wheat flour?
4. What ingredients are contained in plain muffins?
5. How many pounds are there in a barrel of flour?
6. What part of a barrel should be bought if the flour is to be kept in a canister holding 50 pounds?
7. What is patent flour?
8. What foodstuffs are contained in greater quantity in Graham flour than patent flour?
9. Give at least two reasons why Graham flour is usually not bought in as great quantity as patent flour.
10. What gas is formed when baking powder is moistened and heated?
11. Why should the cups of a muffin pan containing no batter be filled with water?
12. How can the edges of toast made in the oven be prevented from curling?
13. Why will an egg measure more after beating than before beating?
14. A girl was making some muffins. She found the baking powder box empty and finished making muffins without baking powder. How do you think her muffins looked when she took them from the oven? Explain what the baking powder would have done to the muffins if she had added it to the other ingredients.
15. A girl mixed some muffins in summer. The kitchen was hot. She found there were no matches to light the oven. She went to the grocery store to buy matches. When she returned she baked the muffins. They were not so light as she expected them to be. What two mistakes did she make in preparing the muffins?

HOME WORK

1. Muffins and cinnamon bread are good to serve for supper or luncheon as well as for breakfast. Prepare these breads at home at least once a week. Report to your teacher if you are successful or if the breads do not turn out so well at home as at school.

2. It may be that your family will enjoy the plain and Graham or whole-wheat muffins so much that you will want some other muffin recipes to try. Dates added to whole-wheat muffins make a pleasing change. Follow the recipe for whole-wheat muffins given on page 88.

Add 1 cup ($\frac{1}{2}$ package) dates. Wash, stone, and cut the dates into slices. Mix the dates into the whole-wheat flour. Then proceed as you would in making plain whole-wheat muffins.

Bran may be used in making muffins. It may be you will want to use the following recipe. Muffins made from this recipe are especially good because they contain fruit and nuts.

BRAN MUFFINS

2 eggs	$\frac{3}{4}$ teaspoon salt
$1\frac{1}{2}$ cups thick sour milk or buttermilk	$\frac{3}{4}$ teaspoon baking soda
2 cups bran	$2\frac{1}{2}$ or $3\frac{1}{2}$ teaspoons baking powder
$\frac{1}{4}$ cup sugar	(See footnote, page 88.)
2 tablespoons melted fat	$\frac{1}{2}$ cup seeded and chopped dates
$1\frac{1}{4}$ cups soft wheat or pastry flour	$\frac{1}{2}$ cup chopped nuts
(sifted before measuring)	

Measure the flour. Add to it the salt, baking soda, and baking powder.

Beat the eggs. Add the sour milk or buttermilk, bran, and sugar. Mix. Stir in the melted fat.

Mix the chopped dates and nuts with the dry ingredients. Add them to the egg mixture. Beat, giving the mixture only about 25 strokes of the spoon.

Pour into greased muffin pans. Bake in a hot oven — 425° F. — for 25 minutes. Serve hot or cold. Yield: 15 medium-sized muffins.

CHAPTER IX

EGGS, BACON, AND OTHER BREAKFAST DISHES

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Are white-shelled eggs better than dark-shelled?
2. What are storage eggs? Are they desirable food?
3. What makes some egg yolks lighter in color than others?
4. Should eggs be bought by the dozen or by the pound? Why?
5. Why does bacon taste different from fresh pork?
6. Why do egg whites sometimes fail to beat up stiff?
7. Why does a spoiled egg float in water?
8. Should eggs be cooked in boiling water or in water below the boiling point? Explain your answer.
9. Should a fork or an egg beater be used to beat egg whites stiff? Why?
10. Which costs the least a pound — sliced bacon in bulk, in packages, or in jars?

How can you tell at market whether eggs are fresh? Some persons have eggs every morning for breakfast. An egg is a very nourishing food for both young and old. Let us see what we can learn about buying this important food.

When you go to market to buy eggs a storekeeper may ask you if you want *strictly fresh* eggs or *storage* eggs. The former usually cost more than the latter. The kind you should select will depend upon how the eggs are to be used. If eggs are to be soft-boiled or, more properly speaking, *soft-cooked*, or if they are to be poached, it is well to buy strictly fresh eggs. If eggs are bought for cake baking, for muffins or other breads, for scrambling, or for omelets, storage eggs may be bought provided the eggs have been stored carefully in a clean, cool place.

In judging eggs at market there are two tests that may be conveniently made :

1. *Look at the shells.* They should be *clean*. When egg shells are dirty, it usually means that they have been carelessly handled. Also look to see whether the egg shells are *rough* and *dull*. Newly-laid eggs have rougher, duller shells than storage eggs. When eggs age, the shells become smoother and somewhat glossy. Whether the shell is white or light brown has nothing to do with the quality of an egg or with its age. It has been determined that the *color* of the shell does not affect the inside of the egg.

2. *Shake the eggs.* When you shake a strictly fresh egg you cannot feel the inside of the egg move back and forth. If you can feel the contents move in the shell, the egg was laid some time ago. If you are planning to buy storage eggs, feeling the egg shake in the shell should not condemn it, unless you find other indications that the egg is unfit to eat.

Why is it that shaking an egg may tell you whether or not it is freshly laid? Like many foods eggs contain water. As an egg ages, it loses some of the water, which escapes through the shell. If an egg has lost very little water, the edible portion almost fills the shell and will not shake around. On the other hand, if some water has evaporated, the contents will move.

In some states eggs are inspected and graded according to government regulations. The cartons containing graded eggs bear the government stamp and date. Either fresh or storage eggs may be graded, but the latter must be marked *cold storage*. Encourage the practice of grading eggs. When marketing ask for them.

How can you tell at home if eggs are fit to eat? Place eggs in a pan of salt water, one heaping tablespoon to a pint. Good eggs will sink. Spoiled eggs will float. The loss of water by evaporation makes them lighter. When eggs spoil, some of the materials change, with the result that a gas is formed which has a dis-

agreeable odor. When an egg is broken open there are several things to notice. (See Figure 31.) The egg is not fit to use if:

1. There is an unpleasant odor.
2. The yolk is stuck to the shell.
3. The white and yolk are mixed together or the white is streaked with the yolk.

In a fresh egg there is a membrane which separates the yolk from the white. When an egg spoils this membrane disappears



U. S. Department of Agriculture

FIGURE 31. A GOOD EGG

Notice that the yolk is distinctly separated from the white.

and the white and the yolk run together. It sometimes happens that an egg shell may be carelessly broken so that this membrane will break also. You can tell whether such an egg is fit to eat

by looking carefully at the yolk and white. If the *egg white* is *thick and clear* and if the *yolk* is *thick and yellow*, the egg is probably good. Some fresh egg yolks are of a much lighter yellow than others. This difference is due to the kind of hen or to the kind of food fed to the hen.

Where and how should eggs be kept in your home? Keep eggs in a cool place. They spoil more quickly in a warm place. Some time before beating eggs, remove them from the refrigerator. *At room temperature eggs beat up more readily* than when cold.

Before using eggs, the shells should be washed. Do not wash eggs (unless they are very dirty) before putting away in the refrigerator. When eggs are washed a coating on the shell is removed and the shell becomes more porous. This makes the egg spoil more readily.

Have you ever noticed that an egg yolk from which the white has been separated soon dries up? Drying of an egg yolk may be prevented by covering it with cold water. If the membrane covering the yolk has not been broken, the water can be poured off when the yolk is to be used. Egg whites keep much better than egg yolks. Both egg yolks and egg whites should be kept in a cold place.

In the spring and summer when hens lay more eggs than in the winter months, it is sometimes a good thing to store some of the eggs so they will keep. The best way to do this in the home is to cover the eggs with a mixture of *water glass* and water. Put the eggs in an earthenware crock or glass jar. Do not use a metal container. Scald the crock or jar before adding the eggs. Pour into the crock the water glass and water mixture. Not all the eggs need to be put in the crock at one time. The eggs may be added as they accumulate. Keep the crock in a cool place.

For 14 to 16 dozen of eggs stored in a 5-gallon crock, buy (at the drug store) 1 quart of *water glass*. Water glass is sold usually in liquid form — it should be about as thick as molasses. Boil

and cool *10 quarts* of water. Add the quart of water glass; mix well.

Why should eggs be soft-cooked rather than soft-boiled? Have you ever noticed that part of a soft-boiled egg is often raw? When eggs are cooked in boiling water they do not cook evenly. Eggs may be cooked more evenly if they are cooked in water just below the boiling point. Even when eggs are cooked hard they should not be cooked in water at boiling temperature. Eggs which are cooked in boiling water until they are hard are *tough*. By cooking eggs in water below the boiling point, the white will become firm (but not tough) and the yolk mealy. We say then that eggs should be soft- or hard-cooked rather than soft- or hard-boiled. This method of cooking eggs follows:

SOFT-COOKED EGGS — HARD-COOKED EGGS

Put the eggs in a pan of boiling hot water. There should be enough water to cover the eggs. Cover the pan; place it where the water will keep hot, but not boil.

For soft eggs, let the eggs remain in hot water *5 minutes*. In case a number of eggs are cooked at one time and they are very cold, a longer time for cooking may be necessary.

For medium eggs, let the eggs remain in hot water *8 to 10 minutes*.

For hard eggs, let the eggs remain in hot water *45 minutes*. After hard-cooking, pour off hot water, cover with cold water. The shells will then come off easier. Eggs may be hard-cooked also by covering them with cold water and heating the water *gradually* until it reaches the boiling point. Then remove from the flame. Cover and let stand in a warm place for *20 minutes*.

POACHED EGG ON TOAST

This is a favorite breakfast dish. You have already learned to make toast. (See page 78.) Make as many slices of toast as there are eggs to be cooked. The toast should be made before or while the eggs are poaching. The toast will be harmed less by standing than the eggs. After the toast is made spread it with butter.

A poached egg is cooked in water, but the shell is taken from the egg

before it is put into the water. Use a shallow pan, greased slightly. Fill it about $\frac{3}{4}$ full of water. Add salt to the water — $\frac{1}{2}$ *teaspoon for each pint of water*. Put buttered muffin rings into the pan. Heat the water until it boils.

Break the eggs one at a time into a cup or small dish. Carefully pour each one into one of the muffin rings. When all the eggs have been placed in the pan, cover the pan. Place it where the water will keep hot, *but not boil*. Occasionally dip a tablespoon of water from between the eggs in the pan and pour it over an egg yolk. Repeat until hot water has been poured over all the eggs. Let the eggs stand for about *5 minutes* or until the egg white is stiffened. The film covering the yolk should also be stiffened. Take each egg out of the pan with a skimmer and place on a slice of toast. If soft toast is liked, pour a few spoonfuls of the hot water over the toast. Serve the toast and egg at once.

Why does beating sometimes fail to make egg whites stiff?

Experiment 11 : *To show the difference between beating a whole egg and beating an egg white.*

(a) Break an egg. Separate the white and the yolk, pouring the white into a small bowl. Try to separate the egg so as not to mix any of the yolk with the white. If some of the yolk gets into the white, remove the bit of yolk.

With a wheel egg beater beat the egg white until it is stiff. Then with a spoon carefully scrape the beaten egg white into a measuring cup. How much does the beaten egg white measure?

(b) Break an egg into a small bowl. Do not separate the white from the yolk. With the same wheel egg beater used for the egg white, beat the whole egg. Pour the beaten egg into a measuring cup. How much does the beaten whole egg measure? (Save these beaten eggs for making omelets.)

The yolk does not beat up so well as the white. When the yolk is mixed with the white, the latter does not beat up so well as when there is no yolk mixed with it. If you want egg whites to beat up well, it is very important not to get any of the yolks in them.

Of what are omelets made? Omelets are made of eggs. Usually milk or water is added as well as seasonings.

OMELETS

For making omelets, the eggs are always beaten. If you want a plain omelet — something like scrambled egg, — beat the whites and yolks together. If a puffy or foamy omelet is desired, beat the yolks and whites separately.

In making omelets use the following proportions :

1 egg	Dash pepper
$\frac{1}{8}$ teaspoon salt	$\frac{1}{2}$ teaspoon butter or substitute
1 tablespoon milk or water	

One egg will make one serving of omelet. If you are making an omelet at home or at school for four persons, use 4 eggs and 4 times the quantity of milk or water, salt, pepper, and butter or substitute given in the recipe. (Write a recipe for an omelet which will serve three persons.)

Plain Omelet. — Beat the egg, add the milk or water and seasoning. Put the butter or substitute in a frying pan or omelet pan. Heat the pan until the fat melts. Then pour the egg mixture into the pan. Cook over a low flame until the omelet is browned on the bottom and the egg is stiff. Loosen the bottom of the omelet with a spatula. Then place the spatula underneath the omelet and fold it so that the browned surface forms both the bottom and top of the omelet.

Place an inverted hot plate or platter over the omelet pan. Turn the pan over so that the omelet will fall on the plate or platter. Serve the omelet at once.

Puffy Omelet. — Separate the whites and yolks. Beat the yolks until they are lighter in color than before beating. Add the milk or water, salt, and pepper to the yolks. Beat the whites until they are stiff. The whites should now be mixed with the yolk mixture in such a way that as little air as possible is allowed to escape from the beaten whites. The method of mixing beaten whites and yolks is called *cutting and folding*.

To cut and fold the egg whites and yolks, pour the beaten whites into the yolk mixture. Then with a spoon edgewise, cut the ingredients, lift them, and turn them over. Repeat until the white and yolk are mixed. In making a puffy omelet it is not necessary to mix the beaten yolks and whites thoroughly.

Put the butter in a frying pan or omelet pan. Heat the pan until the fat melts and pour the omelet mixture into the pan. Cook over a low flame, occasionally turning the pan so that the omelet may brown evenly. When the omelet is set and delicately browned underneath, place it in a *hot oven*, 400° F., for a few minutes to dry the top.

Fold as directed for plain omelet. Serve immediately.

Why are eggs a valuable food? When you poached the egg you noticed that the egg became firm when it was cooked. Heat appeared to change the egg from a liquid to a solid substance. The reason why an egg changes in this way as it heats is that it contains *proteins*. Do you remember that you learned proteins were body-building foods, and that they are present in milk and

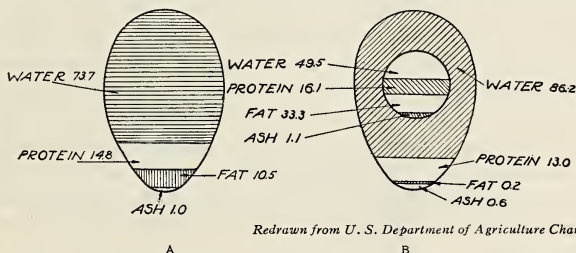


FIGURE 32. A, COMPOSITION OF WHOLE EGG; B, COMPOSITION OF WHITE AND OF YOLK

Note that the whole egg is about three fourths *water*, one sixth *proteins*, one tenth *fat* and one hundredth *ash*. Egg yolks contain *vitamins* A + + +. B + +, C -?, D + +, E +, G + + +. (See note 1, page 37.)

Both the white and the yolk contain *proteins*. Most of the *fat* is contained in the yolk. The yolk contains more *ash* than the white.

in cereals? There are many, many different kinds of proteins. Eggs contain very valuable proteins. We consider eggs protein-rich foods. Study Figure 32 to learn more about eggs.

Why is bacon often used for breakfast? Bacon is a very appetizing food; its flavor is pronounced. Such foods as cereals, bread, and eggs have a mild flavor. Bacon with its decided flavor tastes good with these foods. This is one of the reasons why bacon is often chosen as a breakfast dish.

Bacon is easily digested. "It is the first meat recommended for children because it is easily digested."¹

¹ See page 9 of *Selection and Use of Bacon* by Alice M. Child, Division of Home Economics, University Farm, St. Paul, Minnesota.

Although bacon comes from the side of a hog, its flavor is quite different from that of fresh pork. Its different flavor is due to the fact that it is smoked or cured somewhat as is ham.

What are some points in selecting bacon? Sliced bacon wrapped in packages or packed in a glass jar is usually of good quality and is in a convenient form, but it costs more than that which is bought by the piece or pound. Bacon bought in this way may be sliced by the market man or in the home. Some dealers slice bacon and sell it by the pound. In buying bacon note the *firmness of the fat and the amount of lean meat*. The fat should be firm and there should be fat and lean *intermixed*.

To slice bacon at home, place it on a board or table with the skin or rind down. With a sharp knife, cut it to the rind in thin slices of even thickness. Cut as many slices as are needed, then cut the rind from the slices. If the bacon is cold, it can be cut more easily.

How is bacon cooked? The following methods of cooking bacon were worked out at the University of Minnesota as being among the most satisfactory.¹

PAN-BROILED BACON

1. Place a single layer in a *cool* frying pan.
2. Place over a low heat.
3. Turn frequently.
4. Drain excess fat frequently so the bottom of the pan is only well greased.
5. When bacon is light golden brown and evenly crisped, remove from pan to hot platter.

BACON COOKED IN THE OVEN

1. Place cold slices of bacon in a cold dripping pan.
2. Place dripping pan on a rack in the middle of a hot oven — 400° F. (Best results are obtained if bacon is turned frequently.)
3. When large quantities of bacon are cooked, the oven method is quick and convenient.

¹ See page 9 of *Selection and Use of Bacon* by Alice M. Child, Division of Home Economics, University Farm, St. Paul, Minnesota

Save the bacon fat; pour it into a cup or other utensil. Bacon fat can be used in baking beans, in scalloping potatoes, and in many other ways.

How is dried beef prepared for cooking? Dried beef is another cured or smoked meat that tastes good with the mild-flavored breakfast dishes. A good deal of salt is added to dried beef. To extract some of the salt, boiling water may be poured on the beef. Allow the beef to soak in the water for about *2 minutes*, then drain away the water. If the beef is very dry, the water will not only extract some of the salt, but soften the meat.

CREAMED DRIED BEEF ON TOAST

$\frac{1}{4}$ pound dried beef	2 tablespoons flour
2 tablespoons butter	3 tablespoons cold water
$1\frac{1}{2}$ cups milk	Dash pepper
6 slices toast	

If the dried beef is salty, soak it in water.

Tear the beef into pieces. Put it in a frying pan. Add the butter. Stir and heat until the butter is slightly browned. Pour the milk over the beef. Slip an asbestos mat underneath the frying pan.

Put the flour and cold water in a cup or small utensil. Stir until the mixture is smooth. Stir the milk and beef mixture and as you stir, pour in the flour and water mixture. Cook and stir until the mixture boils. Cook for 5 minutes longer. Add the pepper. Pour over the toast. Serve at once. Yield: *6 servings*.

SUMMARY

Unbroken eggs are fresh if:

1. The shells are rough.
2. The egg does not shake back and forth in the shell.
3. The egg sinks when placed in a pan of salt water.

Broken eggs are fit to use if:

1. There is no unpleasant odor.
2. The white and yolk are distinct and have not run together.
3. The yolk is not stuck to the shell.

Cook eggs in water below the boiling point :

1. To cook them *soft* more evenly.
2. To cook them *hard*, but tender.

In buying bacon keep in mind the following points:

1. Fat — firm and clear.
2. Fat and lean intermixed.
3. Cheaper by piece or pound than in package or glass jar.

REVIEW QUESTIONS AND EXERCISES

Some of the following statements are true; others are false. Read each statement very carefully and decide whether it is true or false. On a piece of paper or in your notebook put the numbers corresponding to the statements. After each number merely write the word True or the word False.

1. Fresh eggs have a rough shell.
2. The color of egg shells does not affect the inside of the egg.
3. A fresh egg floats in water.
4. Omelets are made of eggs.
5. In making omelets the white and yolk are always separated and beaten separately.
6. Eggs are rich in starch.
7. The reason why a broken egg stiffens when it is dropped in hot water is that the egg contains starch.
8. Egg yolks contain more fat than egg whites.
9. Eggs are rich in proteins.
10. A piece of bacon costs more by the pound than package sliced bacon.
11. In preparing creamed dried beef on toast, salt should always be added to the dried beef mixture.
12. Eggs, milk, and fruits are rich in vitamins.
13. Egg whites contain more mineral matter than egg yolks.
14. In making puffy omelet, separate the whites and yolks before beating them.
15. Bacon consists mostly of fat.
16. In a fresh egg, a membrane separates the white and the yolk.
17. Eggs should be poached in boiling water.
18. When eggs are soft-boiled, the yolk and the white are evenly cooked.
19. Fresh egg whites are clear and thick.
20. Egg whites beat up better if cold than if at room temperature.

21. In a fresh egg, the yolk may be stuck to the shell.
22. Eggs should always be washed before they are put in the refrigerator.
23. When an egg ages, water from the inside of the egg evaporates.
24. A mixture of water glass and water should be hot when poured around eggs.

HOME WORK

1. Cook eggs for breakfast.

2. Eggs are good supper or luncheon foods as well as breakfast foods.

In case your family does not eat eggs for breakfast or in case no meat is planned for the evening meal, make an omelet or prepare some poached eggs on toast. In making an omelet for your family do not use more than four eggs. If your family numbers more than four persons, make two omelets, each consisting of three or four eggs, rather than one omelet of six or eight eggs. It is difficult for a beginner to make such a large omelet.

CHAPTER X

A BREAKFAST MENU — SETTING THE TABLE

Can you answer these questions? If not, look for the answers as you study this chapter.

1. In setting a table, on which side of the plate should the knife be placed? the fork? Why?
2. What is a bread and butter plate? Where is it placed on the table?
3. What is a silence cloth?
4. When the table is set, should the sugar spoon be placed *in* the sugar bowl or on the table *beside* the sugar bowl?
5. In setting a table, where should the carving knife and fork be placed? Why?
6. What difference is there between a breakfast plate and a dinner plate?
7. In what order are the foods of a menu listed?

How is a menu written? If you make a list of the foods you have studied thus far, you will find that you can select from the list a wholesome, appetizing breakfast. The fruit you select will depend in part upon the season of the year. Whether the fruit is cooked or uncooked will depend somewhat upon the season and upon your choice. The other foods will not vary so much with the season.

On page 4, some general breakfast plans are given. Turn to this page and study the plans. The following breakfast menu is given that you may learn the proper arrangement of a bill-of-fare.

Baked Apples
Wheatena with Cream or Top Milk
Poached Eggs on Toast
Muffins Butter
Milk or Cocoa

These are some points to notice about this menu :

1. The foods are arranged in the order in which they are eaten or served.
2. Foods that accompany one another, such as poached eggs and muffins, are grouped together. We say that such a group of foods forms a course.
3. A bread invariably accompanies the main dish of a meal and forms a part of the main course.
4. The beverage is usually placed at the end of a menu.

How shall you plan a breakfast menu? In your notebook write down all the foods you have learned to cook which are suitable for breakfast. Then decide which of these foods would form a wholesome and pleasing breakfast for your class to cook and serve at school. For your breakfast select both foods that are pronounced in flavor and foods that are mild-flavored, as suggested on page 3. Also select combinations of moist and dry foods.

(In the breakfast menu given in the foregoing, which foods have pronounced flavor? Which foods have a mild flavor? Which are the drier foods and which are the more moist? Explain why a menu should contain foods both pronounced and mild in flavor and also why it should contain dry and moist foods.)

As you select the foods, write them down in your notebook in the form of a menu. Be ready to explain why you selected each food on your menu.

How may a dining table be made beautiful? Do you enjoy a beautiful picture on the wall? Linens, china, glassware, and silverware may be arranged on a table so that the whole makes a beautiful picture. Let us see how this can be done :

1. The linens and all the dishes placed on the table should be *clean*. Clean linens look better, make the food more appetizing, and are more healthful.
2. The linens should be placed *straight* on the table. The silverware and dishes should be arranged in an *orderly way*. We do not enjoy a

picture which hangs crooked on the wall. Linen and dishes placed on the table in a disorderly way do not make a pleasing picture.

A sunset, a brilliant flower, or a colorful fabric may please you because you are attracted by color. The beauty of a dining table is usually enhanced by colorful flowers or fruit in the center of the table. (See Figure 33.) As the foods are placed on the



Woman's Home Companion

FIGURE 33. AN INTERESTING CENTERPIECE

This charming bouquet containing evergreens and snowberries was gathered when most flowers are through blooming. From flowers growing by the wayside, such as field daisies, buttercups, and wild asters, pleasing table decorations can be made. For the dining table a low centerpiece is suitable, since it does not obstruct the view across the table.

Arranging flowers for the table is one of the ways a girl can help in making her home beautiful. Other suggestions for arranging flowers are given on pages 478 and 479.

table, beautiful colors and color combinations may be introduced into the picture. Think of the gorgeous coloring of foods, such as tomato-red, salmon-pink, carrot-yellow, and lettuce-green. These brilliantly colored foods used with colorless foods may

make a beautiful picture. Apply the principles of color combinations you have learned in your art class to arranging a table. You will enjoy doing it and your family will enjoy the results of your work.

What is a silence cloth? The clatter of dishes is usually not pleasant. To make the placing of a dish on the table noiseless, the table may be covered first with a soft, heavy cloth known as a *silence cloth* or *padding*. There are materials which are made especially for silence cloths. Heavy cotton cloth which is fleeced on both sides is often used. Sometimes silence cloths are made of quilted material. Asbestos is used also as table padding. Flannelette is not so heavy as the materials just mentioned, but it is inexpensive and may be bought not only in white but in dark-wood colors.

A silence cloth not only deadens the sound of dishes but *protects* the table. The *appearance* of a table is usually improved by a silence cloth. It makes table linen *appear heavier* and helps keep the linen flat on the table.

What kind of cloth should be used on the breakfast table? There are appropriate clothes for morning and evening wear. There are also appropriate table linens for breakfast and for the evening meal. For breakfast small cloths, runners, and doilies may be used. These cloths cover only a portion of the table. (See Figure 34.)

Housekeepers find that runners and doilies are economical. Not so much linen is required for them as for a large table cloth. Moreover, the laundering of runners and doilies is simpler than that of tablecloths.

Often runners and doilies are hemstitched or embroidered. They may be used without pads underneath. However, if pads are used to bring out the embroidery and to hold the runner in place, they should, if possible, be of the same color as the wood of the table. The openwork of the hemstitching or embroidery does not look good with white padding underneath. The pads

should be cut a little smaller than the doilies or runners so that they will not extend beyond the edge of linen.

Linens should be placed on the table with care. If a centerpiece is used, it should be placed in the *exact center* of the table. Runners should be laid *parallel* with the *edge* of the table. If two runners are used, they should be placed at the same distance



FIGURE 34. A FAMILY BREAKFAST TABLE SET FOR CONVENIENCE IN SERVING

Note that the fruit, breakfast cereal, bread for toasting, butter, water, milk, and hot beverage are placed on the table. The cereal dish is covered so the food will keep warm. Near it are large spoon, individual cereal dishes, and small plates for serving it. Near the bread is the toaster. Near the coffee pot are two cups and saucers (for mother and father), creamer, and sugar. Milk is placed at the covers set for daughter and son.

from the edge of the table. If the ends hang over, the same amount should hang over each edge of the table.

Where should the knives and spoons be placed? Each person eating at a dining table will need a plate, a knife, and one or more forks and teaspoons. They should be arranged on the table so as to be conveniently used.

We use a *knife* in the right hand. It will be convenient then to place the *knife at the right of the plate*.

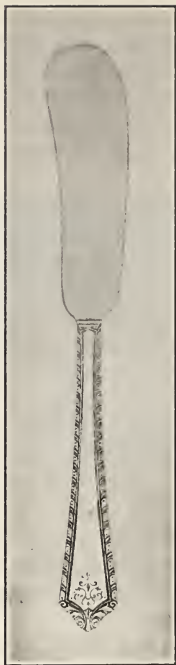
We use a *teaspoon* in the right hand. Therefore it should be placed on the *right side of the plate*.

Many persons use a teaspoon for eating a breakfast cereal. Sometimes, however, a larger spoon known as a *dessert* spoon is used in eating cereal. Whenever more than one kind of spoon is used in eating a meal, the different spoons are arranged in the order of their use. The spoon that is used first is placed farthest to the right. The spoon that is used last is placed next to the knife.

Where should the forks be placed? Knives are held in the right hand and forks in the left during the process of cutting. Therefore, for convenience, a *fork that is to be used with a knife* is placed at the *left* of the plate. In eating such breakfast foods as an omelet, however, we use the fork in our right hand. If we carry out the rule of placing silver used in the right hand at the right of the plate and that used in the left hand at the left of the plate, we should place some forks at the left and some at the right of the plate. When a knife is needed in eating a meal *it is customary to place all forks at the left of the plate* without considering in which hand they are to be used. If more than one kind of fork is used, the forks should be placed in the order of their use — the fork which is used first should be placed farthest to the left. In case the menu requires no knife, a fork may be placed at the right of the plate, thus taking the place of the knife.

Where should the tumblers and bread and butter plates be placed? Each person at the dining table should have a glass of water. The *tumbler* is held with the right hand. It is therefore *placed on the right side of the plate at the tip of the knife*.

Since bread is served at almost all meals, it is customary to give each person a small plate on which the bread and butter are placed. This small plate is called the *bread and butter plate*; *it is placed at the tip of the fork*. Sometimes a small knife with a wide, dull blade, called a *butter spreader*, is used to spread butter on the bread. (See Figure 35.) This knife is *usually laid on top of the bread and butter plate*.



International Silver Co.

FIGURE 35. A BUTTER SPREADER

Individual knives are used for spreading butter on bread or crackers. Butter spreaders may be used for *placing* cream cheese or marmalade on bread. (Do not *spread* these foods on bread.)

A butter spreader placed on a bread and butter plate parallel with the edge of the table is easily grasped with the right hand.

Where should the napkin be placed? Possibly because more articles are placed at the right of the plate than at the left, *the napkin is often placed at the left, beyond the forks.*

For formal meals, the napkin may be placed on the plate.

What is a cover? We sometimes hear it said that a table is set for a certain number of *covers*, six covers, for example. What is a cover? *A cover is the linen, glass-ware, silver, and china that are placed on the table for each person.* (See Figure 36.)

Most dining tables may be lengthened or shortened by adding or removing boards. In deciding how long a dining table should be, think of the number to be seated at the table. Then allow from twenty to twenty-four inches for each person. The dining table is usually placed in the center of the dining room, so that covers may be placed on all sides of the table. If there is an even number of persons to be seated at the table, the same number of covers should be placed on each side of the table.

How many dishes and what pieces of silver should be placed at each cover? The number of

knives, forks, and spoons placed at each cover depends upon the kind of food in the menu. In the menu planned on page 104, two teaspoons will be needed, one for the baked apple and one for the Wheaten. If cocoa is served, a third teaspoon will be needed. Sometimes, instead of being placed at the covers, the teaspoons for the beverage are placed in a small tray at the

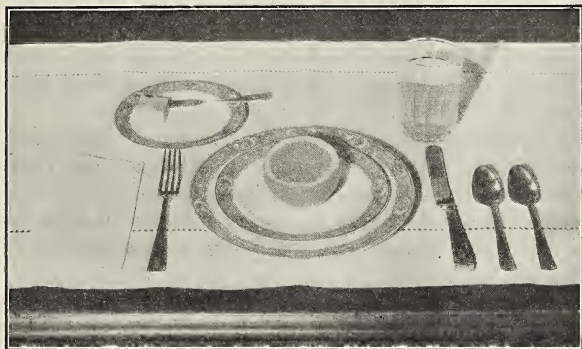


FIGURE 36. A BREAKFAST COVER

The plate and the handles of the silver are placed at an equal distance from the edge of the runner — about one inch.

Notice what articles are placed at the right of the plate and what at the left. Also notice how the knife blade is placed and the positions of the tumbler and bread and butter plate.

hostess's place. Before passing the beverage she places a teaspoon on each saucer beside the cup.

For the main course of a breakfast, a knife and a fork are usually needed. In case the main dish is an omelet or poached egg on *softened* toast, a knife may not be needed for this course. However, if butter spreaders are not provided at each cover, a knife will be needed to spread the muffins or other kind of bread. Even though a large knife is used only for spreading bread, it should be placed at the right of the plate.

At each cover should be placed a tumbler, a bread and butter plate, and a napkin. These articles are needed for any breakfast menu.

In serving most meals, more than one kind of plate is needed for each person. For the fruit course a dessert plate is generally used. If fresh fruit such as oranges is served, the fruit is placed on the plate. If cooked fruit is served, the fruit is often placed in a sauce dish and the sauce dish placed on the dessert plate.

For the main course a breakfast or luncheon plate is needed. This plate is smaller than a dinner plate but larger than a dessert plate.

If the beverage is cocoa, a cup and a saucer will be needed for each cover. The cup and the saucer are usually not placed at the individual places, as all cups and saucers are placed at the hostess's place. A tumbler of milk in addition to the water glass may be placed at each cover before the meal is served. (See Figure 34, page 108.)

Where should the general serving dishes be placed on the table? For a simple meal at home such foods as meat or eggs, vegetables, or bread are brought to the table in large serving dishes. Then these foods are cut or divided into portions at the dining table and passed to each person.

It has long been a custom for the father of a family or the host to serve the meat or main dishes and vegetables. The mother of a family or the hostess serves the beverage and, in case the meal is a luncheon or dinner, the dessert. At the table the father usually sits at one end and the mother at the other.

The Serving Dishes near the Host. — For convenience, the platter of meat or other food is placed at the end of the table where the host sits. Note in Figure 37 the position of the platter, breakfast plates, and serving spoon and fork.

The Serving Dishes near the Hostess. — Since the hostess will hold a pot of cocoa or of coffee in her right hand, the cocoa or coffee pot should be placed at the right of her cover. The



FIGURE 37, A. A HOSTESS'S COVER ARRANGED TO SERVE THE BEVERAGE
AT A FAMILY BREAKFAST

Note the position of the beverage pot, cream pitcher, sugar bowl, cups and saucers.



FIGURE 37, B. A HOST'S COVER ARRANGED TO SERVE THE MAIN COURSE
AT A FAMILY BREAKFAST

Note the position of the breakfast plates, baking dish, and serving spoon.

creamer, sugar, cups, and saucers are placed near the beverage pot. The hot cocoa or coffee pot will mar the table if a tile stand or plate is not placed under it. The sugar spoon rests on the table beside the sugar bowl. The spoon is not placed in the sugar bowl until the spoon is dipped into the sugar. When the table is set, all silver for serving food should be placed *beside*, not *in* the dish in which it is to be used. After the piece of silver has been used in serving the food, it must, of course, be placed in the serving dish.

The serving dishes should be *distributed evenly* over the table. The table should not appear crowded in any one spot.

Should all dishes for serving be placed on the dining table when the table is set? While the fruit and cereal are being eaten, the eggs would doubtless become cold if they were put on the dining table before the meal was served. In order to serve foods hot we usually do not place all of them on the table before the meal is served. However, all the dishes needed in serving should be put in a convenient place. Plates and other dishes on which hot foods are to be served should be placed in the warming oven. Busy persons have no time to wait in the morning.

We may place the dishes for the *first course on the table before the guests are seated*, if the *food is to be served cold*.

When should the butter be put on the table and the water poured? How should the chairs be placed? The butter and water should be put on the table just before the meal is served. It is especially necessary to wait until the last minute in warm weather. Water glasses should be filled three-quarters full.

Place a chair at each cover. Let the front edge of the seat be on a line with the edge of the table. The chair should be arranged so that a person can be seated without moving his chair.

SUMMARY

Definitions :

A *menu* is a list of foods forming a meal.

A *course* is a portion of the foods of a menu which are served at one time.

A *cover* is the linen, glassware, silver, and china that are placed on the table for each person when the table is set.

A *silence cloth* is the heavy cloth or padding placed underneath the table cloth to deaden the sound and protect the table.

Setting a cover :

In center — plate

At right — knives, spoons, tumbler at tip of knife

At left — forks, napkin, bread and butter plate at tip of fork.

General serving dishes :

Near host's cover — platter and other serving dishes of main course ; carving knife and tablespoons at right ; carving fork at left.

Near hostess's cover — cups and saucers, creamer, and sugar bowl, beverage pot at right of cover.

REVIEW QUESTIONS AND EXERCISES

1. Make a list of the silver and dishes placed at the right of the plate of each cover when setting the table.
2. Make a list of the silver and dishes placed at the left of the plate of each cover when setting the table.
3. Where may the napkins be placed?
4. If you were serving omelet for breakfast, where would you put the tablespoon with which to serve the omelet when you were setting the table? After the tablespoon had been used for serving where should it be placed?
5. Imagine that you are setting the table for this breakfast menu :

Sliced Oranges
Oatmeal with Top Milk
Omelet
Buttered Toast
Cocoa

Think of the silver and dishes that would be needed for each person. Make a diagram of a cover.

HOME WORK

1. Set the breakfast table at your home for at least two mornings during the week.

2. Copy the following and take it to your teacher :

(a) I set the table for breakfast for mornings during the past week. (Fill in the number)

(b) At the right of the plate of each cover, I placed the following : (Make a list of the articles)

(c) At the left of the plate of each cover, I placed the following :

(d) After the family were seated at the table, I $\left\{ \begin{array}{l} \text{did} \\ \text{did not} \end{array} \right\}$ need to go to the kitchen or cupboard for dishes or silver I had forgotten to place on the table.

Signed.....

CHAPTER XI

SERVING A FAMILY BREAKFAST

Can you answer these questions? If not, look for the answers as you study this chapter.

1. When waiting on table, should you serve at the right or at the left side of a person seated at the table? Give a reason for your answer.
2. Should a plate of rolls be passed *on a tray*?
3. What can be done to prevent cream or milk from dropping from the spout of a pitcher on to table linen?
4. From which side of a cover should dishes be removed?
5. On which side of a cover should a cup and saucer be placed? Why?
6. Should a tumbler be lifted from the table when it is being refilled?
7. What is meant by *serving a meal family style*?
8. In serving a meal family style, are foods separated into individual portions in the kitchen or at the dining table?

What accomplishment can every girl have? We admire the person who plays the piano artistically. We admire the person who can read or tell a story well. We say that such persons are accomplished. Those who have accomplishments have usually worked very earnestly, but they find that the hard work is worth while. It brings pleasure not only to themselves, but to their friends.

Many persons believe that artists have special talents and that only persons having talents can become artists. However that may be, we believe every girl may attain at least one accomplishment — the ability *to serve a meal gracefully*.

It is an asset for every girl to appear well in her home. In very many of the social gatherings of friends in a home, food is served.

If you desire to serve food in an accomplished manner, a good

way to learn is to serve your own family. At a family meal both the host and hostess help in serving the food. The daughters and sons often help too. At school when your class cooks and serves meals, you will probably have a turn at acting as host, hostess, or daughter. In your own home, you can often or perhaps regularly help your mother in serving.

How is a meal served at the family table? We learned that a table should be set in an orderly way. The serving of a meal should also be orderly. There are several ways or styles of serving a meal. One of the approved ways is called the *family style*. It is also sometimes called the English style.

The family style of serving may be followed when only the family are seated at the table. This style may be used, however, when there are visitors or guests at the table. Some women who have attained the art of serving a meal gracefully prefer the family style because it seems more sociable or cozy. The family style is less formal than other styles about which we shall learn later. It is, therefore, a good style to use for serving breakfast. Breakfast is usually the most informal meal of the day.

When all of the family are seated at the table and there is no one else to wait on table, several or all members of a family should help in serving. Mother should not do it all. With the family style of serving, the foods are brought from the kitchen to the dining table in general serving dishes. Then some one at the table divides the food into portions and places the portions on plates or other dishes. The plates or dishes of food are passed to each member of the family. As has been stated, the main dish of a breakfast is usually served by the host, and the beverage, by the hostess.

How is the fruit served? If fresh fruit is served for breakfast, it may be placed on the table in one dish. The dish of fruit may serve as a centerpiece. Then some member of the family — often the hostess or daughter — may start to pass the fruit from one person to another. However, such fruits as oranges are

usually prepared in the kitchen for individual serving, as described on pages 16 and 17.

A sauce dish of cooked fruit may be placed at each cover before the family is seated or the fruit may be brought to the table in one general serving dish. When the family is seated, the fruit may be divided into individual portions by the hostess or daughter and passed to each member of the family.

When the fruit is eaten, each one may set his soiled dish aside or the dishes may be carried to the kitchen. Carrying the dishes to the kitchen is one of the duties for a daughter of the house. If the soiled fruit dishes are taken to the kitchen, the cereal or other foods to be served later may be carried to the dining table on the return trip. When a meal is being served, it is economy of steps neither to leave nor to enter the dining room empty handed. Make as few trips to the kitchen as possible. Make every trip count.

A service wagon or an ordinary tray is a step saver. (See page 156.) If a service wagon is placed near the dining table, the soiled dishes may be placed on it. The lower shelf of the service wagon is a good place for soiled dishes.

How is the cereal served? Because breakfast is usually an informal meal, many families do not serve it in courses. A hot breakfast cereal in a warm tureen may be placed on the table before the family is seated. The hot covered dish will usually keep the cereal warm while the family is eating fruit. Then the cereal may be served in cereal dishes and passed to each member of the family. Usually as many cereal dishes as there are covers at the table are placed in a pile at the place of the one who will dish out the cereal. It is well to have also a pile of dessert plates, so that each dish of cereal may be placed on a dessert plate when it is passed to one of the family. The one nearest the cream pitcher starts to pass the milk or cream.

After eating the cereal, the soiled dishes may be set aside on the table or placed on a service wagon.

How is the main dish served? If the main dish is one that needs to be served very hot, as has been stated previously, it is often necessary to leave this dish in the kitchen while the fruit and cereal are being eaten. If the soiled cereal dishes have been carried to the kitchen, on one of the return trips the main dish may be brought to the table and placed at the host's cover. A pile of hot breakfast plates — one for each member of the family — may also be placed at the host's cover. The host then serves the main food on plates and passes them to each member of the family.

The one nearest the bread should start to pass it.

How is the beverage served? If milk is served for breakfast, a glass of milk is placed at each cover before the family is seated at the table. If cocoa or any other hot beverage is served, the hostess pours it. If cream and sugar are served with the beverage, she may add these to each cup or pass the cream and sugar so that each may help himself.

Should food be served on cold or on hot dishes? A cold baked potato is heavy, soggy, and unappetizing. A steaming hot baked potato, white and mealy, is usually delicious. To keep foods hot, the dishes on which they are served should be hot. Foods that are well cooked are sometimes spoiled by being served on cold dishes. Dishes may be heated in the warming oven or in hot water.

On the other hand, a chilled fruit or other cold food may lose its attractiveness if served on a warm dish.

A rule which should be followed generally in serving food is: *Serve hot foods on hot dishes; serve cold foods on cold dishes.*

What is the main difference between serving with and serving without a maid? We have discussed the serving of a meal when the entire family is seated at the dining table. If one member of the family "waits on table" or if a maid serves the family at the table, how shall a meal be served?

For the family style of service, whether or not there is a maid,

the host and hostess separate the food into individual portions at the dining table. The maid carries the food to be served and dishes for serving to the dining table. When the food is separated into portions, she carries one to each member of the family. At the end of each course she also takes soiled dishes to the kitchen.

When a meal is served by a maid, there are certain methods of serving which are generally followed. These methods are discussed in the following.

Shall dishes be placed or passed to the right or left of the person seated at the table? If bread is offered to a person at the table, he will reach for it with his right hand. It will be easier for the guest to reach, if the waitress stands at his left. One of the rules for waiting on table is: *Pass all dishes to the left of a guest.*

When the host puts food on a breakfast or dinner plate, the plate is not offered to a guest. The maid *places* a served plate at each cover. It is expected that all guests will desire such dishes. Within the last few years, it has become customary to *place* dishes at the *left* of a guest. Therefore, another general rule for serving is: *Place dishes at the left of a guest.* There are, however, some exceptions to this rule.

It is customary to place a cup and saucer containing a beverage on the table after a plate of food has been placed in front of the guest. The cup and saucer must, therefore, be placed on the side of the cover. Because a person raises the cup in his right hand, it is more convenient to place the cup and saucer at the right side of the cover. The cup should be turned so that its handle is on the right side.

How shall dishes be removed from the table? You have learned that all dishes are *placed* at the *left* of a guest. It has become customary within the past few years to *remove plates from the left side of a guest also.* If for any reason it is more convenient to remove a plate from the right side of a guest, the plate should be removed from the right.

In removing dishes, the waitress should not reach in front of the guest. If there are any dishes at the right side of the cover, these dishes should be removed from the right side.

If there are several dishes to be removed from one cover, it is not considered good form to pile one dish on top of another. However, the waitress may remove two dishes at one time by taking one dish in the right hand, and another in the left.

All dishes belonging to a course should be removed from the table at the end of the course. The order of removing dishes is to take away first the dishes at each cover and then remove the serving dishes nearer the center of the table.

When a waitress is waiting on table she should remove the dishes from the hostess's cover first. If the daughter is waiting on table, she should observe the same order. In case a hostess is waiting on table, she should begin removing the dishes from the cover at her right, then continue around the table and finally remove the dishes from her own cover.

Should a tray be used in serving a meal? When a meal is being served by a maid, the tray should be used very sparingly. It is very convenient to have in a dining room a table smaller than the dining table, known as a serving table. The serving table is usually placed on one side of the dining room against the wall. Food and dishes may be carried from the kitchen to the serving table and then carried from the serving table to the dining table. If this plan is followed, the food and dishes may be brought from the kitchen to the serving table on a tray. However, in carrying the food and dishes from the serving table to the dining table, the tray should not be used. Instead of a tray, the waitress should place a folded napkin on her hand and rest the dishes on top of the napkin. The tray should not be used in removing plates and other dishes from the table except when removing small articles such as salts and peppers. If extra spoons or forks for serving a course are placed at each cover, a small tray may be used to carry the silver.

In order to pass the cream and sugar at one time, it is convenient to place them on a very small tray or on an oval dish. The tray or dish should be large enough to hold only the pitcher and sugar bowl. With this arrangement if cream drops from the spout of the pitcher, it soils the tray but not the table linen. If there is no small tray or dish for the creamer and sugar, it is well to place a small plate underneath the pitcher so as to catch the drops of cream. A plate underneath a pitcher or bowl not only keeps the tablecloth clean, but makes it more convenient to pass these dishes at the table from one to another.

When and how should tumblers be filled? Warm water is not pleasant to drink. The water glasses should, therefore, be filled just before a meal is served.

Often it is necessary to refill the glasses. To do this do not lift the glass from the table. If it is difficult to pour water into the glass, the glass may be moved nearer the edge of the table. While the glass is being filled, it should rest on the table. In moving the glass grasp the lower part so as to keep your fingers away from its rim.

In order to refill glasses during a meal, it is convenient to have a pitcher of water in the dining room. The pitcher should rest on a plate. When serving without a maid, it is convenient to have the pitcher of water on the dining table. If a maid waits on table, the pitcher may be placed on the serving table.

An efficient maid watches the glasses. When they are nearly empty, she refills them without being reminded of it. Filling glasses is one of the ways in which the daughter of a home may assist at the table. In pouring water from a pitcher, a clean napkin may be used to catch the water dripping from the spout.

SUMMARY

Family style of serving :

Food brought from kitchen to dining table in general serving dishes.

Food divided into portions by one seated at the dining table.

When there is no one waiting on table :

Fruit and cereal are placed on breakfast table before family is seated.

Portions of food are passed from one member of a family to another.

Main dish and beverage are usually brought to table after fruit and cereal are eaten.

When waiting on table these rules should be followed :

1. Serve *hot foods on hot dishes*; serve *cold foods on cold dishes*.
2. Pass foods (*i.e.*, offer foods) at the *left* of each person.
3. Place most individual servings of foods at the *left* of each person.
4. Remove most dishes from the *left* of a person.
5. Use a *folded napkin on the hand when possible* in carrying dishes and food to the dining table. Do not use a tray.
6. Carry a dish in each hand when removing dishes from the dining table. Do not pile one dish on top of another.

REVIEW QUESTIONS AND EXERCISES

1. State five rules for serving that should be followed when waiting on table.
2. What is the family style of service?
3. In the family style of service, what is the chief difference between serving with a maid and serving without a maid?
4. Why is it worth your while to learn to serve a meal gracefully?
5. In what ways may a service wagon be useful in serving a meal?

HOME WORK

1. Ask your mother if you may serve the breakfast at least one morning of the week.

In serving breakfast try to accomplish the following :

a. Keep in mind the foods that are to be served for breakfast. Before the family is seated at the table, have on the dining table, on the kitchen table, or in the warming oven, all the dishes needed in serving the breakfast.

b. In serving the breakfast, you will make all the necessary trips from the dining room to the kitchen. Let your mother and other members of the family remain seated at the table.

c. After the family are seated at the table, make as few trips as possible from the dining room to the kitchen.

d. On each trip to the kitchen, both going and returning, carry something.

e. Keep the water glasses filled during the meal.

2. Copy the following and take it to your teacher:

a. I served breakfast mornings during the past week.

(Fill in the number)

b. All dishes needed for serving $\left\{ \begin{array}{c} \text{were} \\ \text{were not} \end{array} \right\}$ on the dining table, in the warming oven, or on the kitchen table before the family were seated.

c. After being seated at the table, I made trips from

(Fill in the number)

the dining room to the kitchen.

d. Each trip made to the kitchen I $\left\{ \begin{array}{c} \text{carried} \\ \text{did not carry} \end{array} \right\}$ something out and $\left\{ \begin{array}{c} \text{brought} \\ \text{did not bring} \end{array} \right\}$ something back.

e. I $\left\{ \begin{array}{c} \text{kept} \\ \text{did not keep} \end{array} \right\}$ the water glasses filled without being reminded of filling them.

Signed.....

CHAPTER XII

GOOD MANNERS AT THE DINING TABLE

Can you answer these questions? If not, look for the answers as you study this chapter.

1. With what fingers should you hold your fork?
2. How should you butter bread at the dining table?
3. With what piece of silver should you put butter on a hot potato?
4. After using a knife, how should you place it on your plate?
5. Should you fold your napkin at the end of a meal?
6. What is the purpose of a bread and butter plate?
7. When you are not stirring your cocoa or other beverage, where should you place the spoon? Why?
8. If you have peeled a potato at the table, where should you place the skin?
9. How should you fill your soup spoon? Should you fill it full? Why?
10. When you pass your plate for a second serving, where should you place your knife and fork?

Why are table manners important? A certain young woman proved to be a very good student in college. She talked in an interesting way. She was friendly to her classmates. These qualities made her popular among her college friends. One of the young men in her class invited her to go to a school picnic. At the picnic supper, rolls were passed. The girl stuck her fork into a roll to remove it from the plate. In cutting a piece of cold meat, she gripped her fork as if it were a "weapon." She smacked her lips when eating. The young man had been taught that because we usually eat in the presence of other people, we owe it to our associates to learn when and how to use a fork. The young girl's table manners disgusted her escort. He over-

looked her many fine qualities because she had failed to learn some of the niceties of table conduct.

A young man had been commended to a business man as a skillful secretary. The business man invited the applicant to lunch with him in order to talk over some of the duties his secretary would have. When the business man noted that the applicant showed no training in table manners he decided at once to look elsewhere for a secretary. The young man lost the position because his crude manners made a bad impression. Good table manners count in society, in business, and in the home.

Why should we be careful about table manners at home? A wise person once said: "Eat at your table as you would eat at the table of a king." Why is it important to take care how we eat when no one except the home folks are at the table? We eat every day; therefore the way we eat becomes a habit. If we do not eat in the correct way at home, we get so used to eating the wrong way that we repeat our mistakes in the presence of friends, acquaintances, and strangers. Also, since we usually eat in the presence of other people, we owe it to those about us — whether our associates be home folks or company — to eat as noiselessly and in as pleasing a way as possible. *No school boy or girl can afford to neglect table manners.* The way a person eats brands him as well brought up or as lacking in training.

We are good-mannered when we are thoughtful about others. It is worth while to learn how to conduct ourselves at the table so as to be as considerate of others as possible.

How and where shall we be seated at the table? Custom makes some things correct. It has been customary to stand behind the chair in which we are going to sit at the table. Stand until the hostess starts to sit down. Then, unless it is inconvenient, move to the left of your chair and be seated. Rise from the left of the chair, also. Sit straight in your chair with your feet resting on the floor — not on the rungs of the chair. If this

position is not comfortable, you may cross your feet, but not your knees.

If there are both men and women or boys and girls at the table, each man or boy may adjust the chair for the lady at his right, as she seats herself.

At the home table, each one has his place. When there are guests for a meal, the hostess makes it more comfortable for the guests if she will let them know just where they are to sit. She may do this by telling the guests where to sit when they come into the dining room, or she may place at each cover a card with the guest's name on it. Such cards are known as *place cards*. In setting the table, put the place cards on the napkin or behind the plate.

A dinner is often given in honor of one of the guests. It is customary for a lady guest of honor to be seated at the right of the host. If a man is the guest of honor, he is seated at the right of the hostess.

In entering the dining room for a formal dinner, the host with the lady guest of honor enters first, while the hostess and her escort are the last to enter the room.

How shall we use the napkin? We may be so hungry when we go to the dining table that we want to begin eating at once. But this would not be considerate of the other persons at the table. Wait until the hostess begins to eat.

Before one starts to eat, the napkin must be unfolded. Unfold it completely if it is small; if it is very large, one fold may be left in it. Place the napkin on your lap. The napkin is to protect your clothing. It may also be used occasionally to wipe the lips. Sometimes it is well to wipe the lips before taking a drink of water to avoid staining the glass.

Where you are going to eat your next meal determines what you should do with the napkin at the close of the meal. If you are at home or are a home-guest and expect to eat the next meal at the same table, the napkin should be folded, provided the

hostess folds hers. If you are a guest for only one meal, however, the napkin should be left unfolded on the left side of your cover.

How shall the fork be held? When shall it be used? Every normal girl or boy wants to appear well. One thing to do to appear well at the dining table is to hold the fork correctly. *The fork is used more often than any other article of table silver. It is also held incorrectly more often than any other piece of silver.* If

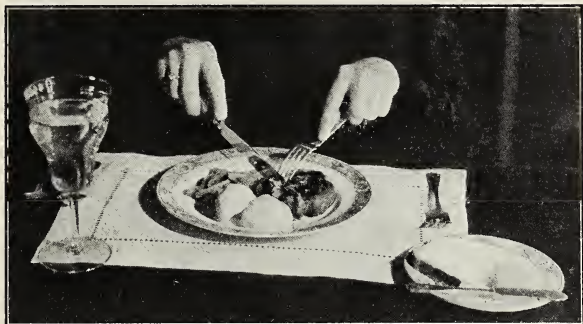


FIGURE 38. USING THE KNIFE AND FORK TOGETHER

Notice that the *fork* is held in the left hand so that the end of the handle touches the center of the palm of the hand, and the handle is grasped with the first, second, and third fingers, the second finger pointing toward the prongs.

The end of the *knife* handle also touches the center of the palm of the hand. None of the fingers should extend along the blade of the knife or the prongs of the fork.

you do not know how to hold your fork correctly, *do not let the day pass until you have learned the right way.*

The fork is held in two ways, depending upon whether it is used alone or with the knife. If the fork is used with the knife, as in eating steak, it is, of course, used in the left hand. (See Figure 38.)

If the fork is used without the knife, it is held in the *right hand*. If mashed potatoes, peas, or other vegetables are being eaten with the fork, the end of the handle is held with the first, second, and third fingers. The prongs of the fork should point up. The fork should not be heaped full of food — it should not be filled more than a third full. (See Figure 39.)

In eating such foods as cream toast, vegetables in large pieces, salad, or pie, *use the fork for cutting*. When cutting with the



FIGURE 39. USING A FORK WITHOUT THE KNIFE

The way in which a fork is used in eating vegetables is shown here. Notice how the fork handle is grasped. Also notice that the fork is not heaped full of food.

fork, hold it as directed for mashed potatoes, merely turning the handle around in the hand so that the left edge of the fork may be used for cutting.

Sometimes one may hesitate whether to use a fork or a spoon. In cases like this *use the fork if it is sensible to do so*. Many desserts should be eaten with a fork rather than a spoon. Firm ice cream may be eaten with a fork. A spoon should be used for soft frozen foods.

There is also sometimes the question whether to cut with the

knife or with the fork. A good rule to follow is to *use the fork if possible*. In placing butter on a hot potato, use the fork rather than the knife. Put the butter on the fork as you would a bit of mashed potato. Then place the butter on the potato.

There is an important "don't" for forks. *Do not stick your own fork into a piece of bread or a baked potato* when taking these foods from the serving dish. *The bread should be taken with the fingers. A tablespoon should be provided for serving potatoes.*



FIGURE 40. BUTTERING BREAD

Placing a whole slice of bread in the palm of the hand and buttering it cannot be done gracefully. It is better to spread only a small piece at a time. Whether a butter spreader or a larger knife is used for spreading butter the method is the same.

How shall the knife be held? For what shall it be used? The knife should be held in about the same way as a fork. (See Figure 38, page 129.)

Use the knife for cutting — not for carrying food to the mouth. The knife should be used for cutting firm meat and other foods which cannot be cut with a fork.

The knife may be used also for *spreading bread*. Never spread a whole slice of bread at the table. With your fingers, break

off a small bit of bread and spread it. (See Figure 40.) When this is eaten, another small piece of bread may be broken off and spread.

When the knife is not in use, it should be placed on the plate as shown in Figure 40. Both the blade and the handle should rest on the plate.



FIGURE 41. KEEPING THE FORK IN THE LEFT HAND

If, when you cut a bite of food, the knife is in the right hand and the fork is in the left, it seems an unnecessary and awkward movement to change the fork to the right hand, although many people still prefer to follow the earlier rule.

How are the knife and the fork used together? As previously explained, when cutting meat with a knife, the fork, held in the left hand, is used to hold the food in place. After the food is cut, it may be lifted to the lips with the fork *in the left hand*. It was thought formerly that the fork should be changed to the right hand before lifting the food to the mouth, but either method is considered proper now. (See Figure 41.)

In passing a plate for a second helping, or when the meal or course is completed, place the knife and fork (prongs up) in the

center, not on the edge of the plate, as shown in Figure 42. In the center there is less danger of their sliding off.

How and when shall spoons be used? It is possible to get the bowl of a spoon in the mouth, but it is awkward to do it. Hence it is not in good taste. Regardless of whether you are using a teaspoon or a soup spoon *put only the side of the spoon in the mouth.*

In eating soup served in a bowl or soup dish, move the soup spoon away from you — not toward you. (See Figure 43.) Do

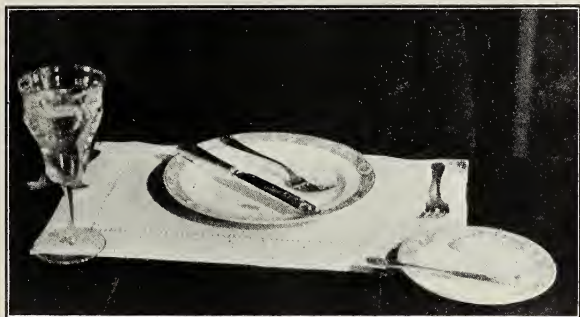


FIGURE 42. THE KNIFE AND FORK AT THE CLOSE OF A MEAL OR COURSE

When a knife or fork is not in use either during a meal or at its close, the entire knife or fork should rest on the plate. It is a mistake to let the handles of these articles rest on the table and the blade or prongs on the plate.

not fill the soup spoon full. Eat soup quietly. If soup is served in a cup you may place the spoon on the saucer, lift the cup to your lips, and drink as you would a beverage.

The teaspoon is used only for stirring beverages and for tasting them to find out whether they are sweet enough or cool enough. A beverage should not be sipped from a spoon. *Place the spoon in the saucer*, and lift the cup by the handle to your

lips. (See Figure 44.) A spoon should never be left inside the cup. Do not blow on beverages or soups to cool them

Besides using spoons for soup and beverages, spoons are used for eating soft foods, such as cereals and some desserts.

For what shall you use the fingers? Taking a piece of bread from the general serving plate with the fingers has been mentioned. Firm cake may be taken from a plate with the fingers. Firm or dry cake may be eaten also from the fingers, breaking



FIGURE 43. USING A SOUP SPOON

To eat soup gracefully and quietly (1) move the soup spoon away from you, (2) fill it only partly full, and (3) place the side of the bowl of the spoon to your lips.

off a small piece at a time. A fork should be provided for taking soft cake from a plate. Soft cake should also be eaten with a fork.

In deciding whether you should eat such foods as sandwiches with the fingers, think of the effect of the foods on your fingers. If you can break foods into pieces with the fingers and keep them reasonably clean, do so. It is not considerate or a pleasing sight to soil the fingers badly and wipe them on the napkin. In eating a *dry sandwich* from the fingers always *break it in two* before taking a bite. Always eat club sandwiches with a fork.

Crackers, nuts, candy, hard cheese, radishes, celery, and artichokes are eaten from the fingers. Firm pickles and olives are also eaten from the fingers.

Shall food be left on the plate? It was formerly considered proper to leave some food on the plate at the end of a course or a meal. Perhaps this was to give the impression that one was not greedy. Now we look at this matter more sensibly and



FIGURE 44. USING A TEASPOON

If a teaspoon is left in the cup, an accident is likely to occur. Whether a teaspoon is used for a beverage or for a fruit, let it rest, when not in use, on the saucer or plate.

think it all right not to leave food on the plate. Good food not only costs money, but requires time and effort to prepare. *It is wasteful to leave food on the plate.*

If we are to leave practically no food on our plates, we should make it a rule not to take more food than we can eat or should eat. Leaving no food on our plates also means that we should learn to like all or almost all foods. When eating at a friend's home, it is discourteous to the hostess to refuse foods that are set before us. A hostess is gratified to know that the foods she offers are enjoyed by her guests.

Do you leave uneaten the lettuce of salad? Lettuce is a very valuable food because it is rich in *vitamins* and *mineral matter*. about which we learned when fruits were studied. It is one of the *leafy vegetables*. The advice has been given by some food experts that a *leafy vegetable should be eaten every day*. If you refuse to eat the lettuce of a salad, you are losing a valuable material that your body needs. Then, too, lettuce costs money. It is a pity to waste this nourishing food.

In eating all the food on our plates, we should not go to such extremes as did Jack Sprat and his wife when "they licked the platter clean." It is of course both ungraceful and noisy to scrape the food from dishes at the dining table. No dish should ever be tilted or lifted from the table to get the last bit. In order to drain the last drop from a cup do not conspicuously throw the head back.

How can you keep the table dainty? At one time it was customary to use tiny plates about two inches in diameter for serving butter. These dishes were, of course, large enough to hold a serving of butter, but they were not large enough to hold a piece of bread. Both may be placed on the bread and butter plates which are now quite generally used. This is an advantage, since crumbs may be kept on the plate and not on the table linen. When breaking and spreading bread one should see to it that the crumbs fall on the plate and not on the table cloth.

The skins of such foods as potatoes are sometimes discarded at the dining table. These should be kept *on the plate* — not on the table linen or on the bread and butter plate. The seeds of some fruits are removed at the table. Do not place these on the table cloth or bread and butter plate. Fish bones and seeds should be removed from the mouth as inconspicuously as possible. Remove them one at a time with the finger and thumb. After food is in your mouth, do not remove it unless it contains something harmful such as a seed or a bone. If you have taken something that is too hot, quietly take a drink of water.

For correct serving, a plate should be placed underneath the cereal dish, the soup plate or bowl, the sauce dish or sherbet glass in which dessert is served. Such plates are called *service plates*. They serve two purposes — to keep the table linen clean and to make it easier to keep the fingers away from the food when it is being passed.

After a piece of silver is used, it should always be placed on a dish — not on the table linen. Resting a knife wholly on a plate and not partly on the table has been mentioned. In the latter position, a knife very easily slips from the plate, usually resulting in soiling the table linen. Accidents with teaspoons are much less apt to occur if they rest on the saucer rather than in the cup, as explained on page 135.

What shall be done when accidents occur at the table? There is an old saying which goes, "The least said, the easiest mended." This advice should be followed after an accident at the table. Of course, you should say some such thing as "I am so sorry. Please excuse my awkwardness." If you express your regret briefly and sincerely (for who is not disturbed when an accident occurs in the presence of those before whom he would like to appear well?), you are doing the best you can under the circumstances. To continue expressing your regret in a profuse manner is unpleasant to the other guests at the table.

If you are a guest at a meal, the hostess will assure you that it is of no consequence and will see that the damage caused by the accident is repaired. If no maid is waiting on table, it may be that you can help the hostess in repairing the damage. If you are in your own home and there is no one waiting on table it will probably be best for you to remedy the accident rather than let your mother do it. In case you drop a piece of silver on the floor, do not attempt to recover it during the meal. The hostess will see that another piece of silver is given you. In your own home, you can get the clean silver.

What shall be said at the dining table? At meal time one should be comfortable and happy. A happy state of mind is believed to help digestion. This means that conversation at the table should be pleasant. Such subjects as sickness and operations do not make suitable table talk. Sad or disgusting topics should be avoided. Choose pleasant subjects and wholesome stories that cause amusement or laughter.

Perhaps your mother has been in the house all day. She has seen no one except her family. She will usually enjoy hearing at the table what the members of her family who have mingled with other people have heard or learned. Your family may be interested in an account of something that happened in school. You may be able to do much to make meal time one of the pleasantest times of the day.

When you are having company for a meal there are some things for you to consider other than giving your guests good food and making them comfortable. You should try to make them *enjoy* the meal not only because they are eating good food but because there is *pleasant conversation*. Sometimes, especially at the beginning of a meal, there are pauses in the conversation. Then it is that you should start a topic. Direct a question now and then to one who is saying little or nothing.

If you are a guest at a meal, *help the hostess* in making conversation pleasant. If the table is a large one, you may not be able to talk to every one — only those nearest you. Talk at least to those on both sides of you.

Does your appearance count at the table? When we studied setting the table we learned that the linens and dishes should be clean and that they should be arranged neatly. It would seem then that those who sit around the table should be clean and neat.

There is a health rule which says: "Wash your hands before going to the table." If your face is dirty, it too should be washed. This should be done not only for your own sake but for the others at the table with you.

No one should go to the breakfast table without washing the face and hands, combing the hair, and wearing neat clothes. The breakfast table is no place for kimonos and boudoir caps. These are to be worn only in one's bedroom.

In some families, the only meal in which all can eat together is the evening meal. In many families the evening meal is the dinner, *i.e.*, the most elaborate meal of the day. It is a custom in some homes for the members of the family to change their clothes for the evening meal. After one has worked in clothes all day, it is restful to change to other clothes.

If you assist in getting the meal ready, a large apron may be used to protect your dress. You should, of course, remove the apron when you sit down to eat.

SUMMARY

Table manners count in the home, in business, and in society.

We should use good manners *at our home table* because :

1. The way we eat every day becomes a habit.
2. We owe pleasing table conduct to the rest of our family.

Thoughtfulness for others is the basis of good manners.

Move to the *left of your chair* to be seated at the table. Also rise unless it is inconvenient, *from the left side* of your chair.

Do not *begin to eat* until the hostess starts.

Use of napkin :

1. Unfold and place on your lap.
2. *Fold at close of meal*, if you will be present at following meal.
3. *Leave unfolded* at close of meal, if you will not be present at following meal.

Use of knife :

1. Cutting firm foods.
2. Spreading bread.

Use of fork :

1. Holding food cut with a knife and lifting it to lips.
2. Cutting soft foods.

Use of teaspoon :

1. Stirring.
2. Tasting, not sipping.
3. Eating soft foods.

Eating soup:

1. If soup is served in a bowl, sip it from the side of the spoon.
2. If it is served in a cup, drink from the cup.

Foods eaten from the fingers:

Bread	Artichokes	Candy	Radishes
Dry cake	Crackers	Olives	Celery
Dry sandwiches	Nuts	Hard cheese	Firm pickles

REVIEW QUESTIONS AND EXERCISES

1. Suppose that you are having a meal at a friend's home. On the table near your cover is a dish of preserves; there is a spoon on the table beside the preserves. Suppose the hostess says: "Mary, will you please start passing the preserves?" What will you do with the spoon beside the preserves? Will you help yourself first? To whom will you pass the preserves?

2. Some topics that may be suitable for table talk are:

School athletics	Parties
Moving pictures	Current events
Books you have read	What you learned at school in such
Picnics	classes as history, English, home
	economics

a. Make a list of at least five topics that you think would be interesting to discuss at a meal being served at school.

b. Make a list of at least five topics that you think would be interesting to discuss at a home meal.

3. Suppose you dropped your fork on the floor. What would you do?

4. Suppose you accidentally spilled a cup of cocoa at the table. What would you do? What would you say?

5. If there were no bread and butter plates on the table, where would you put your piece of bread?

6. If the silver at your cover includes a butter spreader, for what will you use it?

7. State whether you should eat the following foods with a fork, with a spoon, or from your fingers:

Baked potatoes	Cup custard	Brick ice cream
Beef steak	Peas	Lettuce
Bread	Radishes	Cheese

UNIT 2: MODERN HOUSEWIFERY

CHAPTER XIII

KITCHEN EFFICIENCY AND CHARM

Can you answer these questions? If not, look for the answers as you study this chapter.

1. How high should a work table be? Give a reason for your answer.
2. What is inlaid linoleum?
3. How deep should a cupboard shelf be? Why?
4. If a kitchen has windows facing south, what colors would be suitable for the walls? Why?
5. Why are present-day kitchens usually smaller than those built years ago?
6. What is meant by the food-preparation center of a kitchen?
7. Why should a kitchen be an attractive room?
8. Should all kitchen cupboards have doors?
9. What is the objection to a wooden table top?
10. What is a good finish for kitchen cupboard shelves?

How many miles of useless walking may be done in the home kitchen? Do you know that in some kitchens, thousands of useless steps are taken in one year? A college class in home economics tried an experiment regarding this matter. Two members of the class worked in two kitchens, placed side by side. The young women prepared ten meals and baked bread, cake, and pie twice.

The two kitchens were alike in size but not in arrangement. In one the cupboards, stove, sink, and work table were placed close together. The articles of kitchen furniture were not only grouped together but they were arranged in proper order so that work could be done quickly and easily.

In the other kitchen, the important articles of furniture were placed with no regard for speed and ease in working. The equipment was also less efficient in design than in the other kitchen.

In order that the experiment would be done as accurately and fairly as possible, the two students exchanged kitchens on different days. In this way, if one student watched her steps more carefully than the other, all of the more careful work would not be done in one kitchen.

The steps each girl took in each kitchen were numbered by means of a device fastened on the ankle. When the experiment was finished, it was found that 5848 more steps had been taken in the poorly arranged kitchen than in the well-arranged one. From these figures, it was estimated that in a year almost 500,000 more steps would be taken in the poorly arranged and equipped kitchen than in the other one. In 500,000 steps there are about 224 miles. Can any girl or woman afford to waste this much energy when there are so many necessary and worthwhile things to be done in a home? Let us study something about kitchen arrangement.

What equipment is needed to prepare food? Let us suppose that we are going to make some muffins.

We need eggs, milk, and butter or other fat — we should find these in the refrigerator.

We need flour, baking powder, salt, and sugar — we should find these all together in one cupboard.

We need a bowl, measuring spoons and cups, a knife, and a large spoon for measuring and mixing; we need a pan for baking — we should find these all together in one cupboard.

We need a table on which to work and a stove in which to bake the muffins. If the refrigerator, cupboard, work table, and stove were *arranged close together and grouped in this order*, we would take very few steps in making muffins.

We can store flour, sugar, salt, etc. in the kitchen. These foods are not like eggs, milk, and butter; they do not spoil readily. We call such foods *staple food materials*. When we cook, we need these staple materials constantly. We often use them together. When we use these materials for baking and cooking we need spoons and cups in which to measure them and bowls in which to mix them. We need pans in which to cook or bake them. Would it not be well then to place the staple materials and measuring, mixing, and baking utensils near together in the kitchen?

When the staple materials and utensils as well as the work table are close together, we save many steps. The stove should be placed as near these other articles of kitchen furniture as is practicable.

The principal articles of kitchen furniture needed in preparing food are:

Refrigerator	Work table
Cupboard for staple foods and utensils	Stove

We say that these articles make the *food preparation center* of the kitchen.

What equipment is needed to wash and store dishes? After a meal is cooked and eaten the dishes must be washed and put away. The principal articles of kitchen furniture for this work are (1) the sink and (2) the cupboards for dishes.

Dishes which are to be washed are placed on the right side of the sink. When we wash them, we hold the *dish cloth* in our *right hand* and the *dish* we are washing in the *left*. The dishes should then be placed to drain on the *drain board* at the *left of the sink*. This is more efficient than to place the washed dishes on the drain board at the right. In case there is only one drain board, it should by all means be placed on the left side. If there is a *cupboard* for storing the dishes near the *left side of the sink*, few steps need to be taken in putting the dishes away after wash-

ing them. The sink and dish cupboards are the *dishwashing and dish storage center* of the kitchen.

How should kitchen equipment be arranged? The modern kitchen is used principally for (1) preparing foods and (2) washing and storing dishes. The equipment in every kitchen should be arranged so that these two main kinds of work can be done easily and in the shortest possible time.

In almost every process of cooking or baking, we need water either to wash the food or to mix with it. The *sink* is, of course, very necessary for dishwashing and must form a part of the dishwashing center. It is well, however, to have the sink near the cupboards and work table. This means that although we consider a well-arranged kitchen as containing two work centers, *the centers should be quite close together.*

Because of the heat from the stove, the *refrigerator* and *stove* should not be placed together. It may be an advantage to have the refrigerator in a storage room outside of the kitchen. Then, if the refrigerator is cooled with ice, the footprints of the ice man will not soil the kitchen floor. However, if a refrigerator is so constructed that it may be iced from the outside, it is convenient to have it in the kitchen. If a refrigerator is placed in the kitchen, it should be put near the outside door, for convenience in icing.

The floor plan of a kitchen in which the equipment is arranged efficiently is shown in Figure 45. A kitchen in which the equipment is arranged with no thought about ease and convenience in working is shown in Figure 46. If a food such as muffins were made in this type of kitchen, many steps would have to be taken in collecting the food materials and utensils to make the muffins. This is an *energy-wasting* kitchen.

In some houses, especially in old ones, the kitchen equipment is not arranged for efficiency. If there is a real desire for a conveniently arranged kitchen, it is usually possible to rearrange the furniture so that kitchen work may be done efficiently.

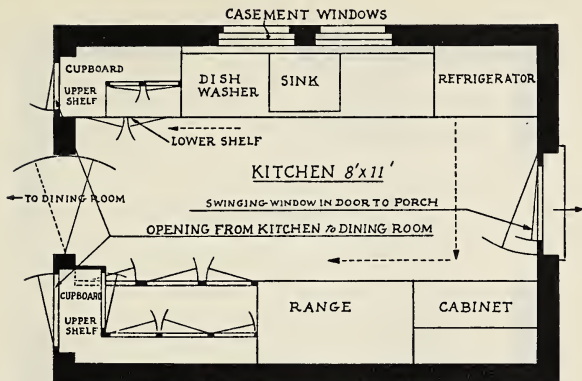


FIGURE 45. A STREAM-LINED STEP-SAVING KITCHEN

Interpretation of plans : Solid lines, walls ; breaks in the solid lines, windows or doors ; diagonal and curved lines, swing of doors ; dotted lines with arrow heads, paths used in food-preparation center and dish-washing center.

This oblong kitchen covers less space than the more nearly square kitchen shown in Figure 46, has more cupboard space, and has a dish-washer at the left of the sink. In the absence of a dish-washer, dishes can be drained efficiently on a left-hand drain board.

In collecting materials for baking it would be possible to make only one trip from the refrigerator to the cabinet. If eggs or other foods are washed, only a step or two need be taken from the refrigerator to the sink.

Notice the cupboards at the left of the sink. If dishes are washed and drained in a dish-washer or drained on the left drain board, but few steps need be taken to store them in the cupboard.

The cupboards opening into both kitchen and dining room are efficient.

In some cases merely placing the work table so that it is close to the cupboards will save many steps. Again, a rearrangement of the staple materials and utensils in the kitchen cupboards may prove a decided convenience.

Often there is much that a girl can do to make the kitchen of her home a more convenient workshop. A girl whose interest

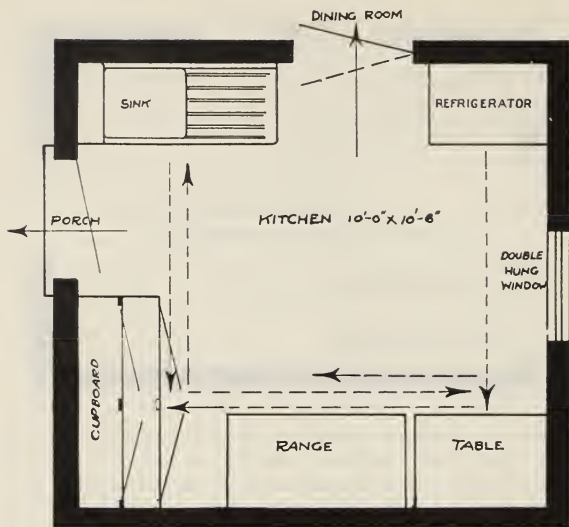


FIGURE 46. AN ENERGY-WASTING KITCHEN

Since the only cupboard in this kitchen is some distance from the work table, many steps must be taken in collecting materials for baking.

Because the sink has but one drain board and that is at the right of the sink, dishwashing is motion-wasting. Then too, the cupboard's distance from the sink makes dish-storing step-wasting.

If the refrigerator is of the ice-storing type, it is inconveniently placed.

and efforts make the kitchen work in her home easier will prove herself a worthy home member.

In selecting a home to rent or to buy, look at the arrangement of the kitchen equipment. If you keep in mind the two work centers of a kitchen, you can readily decide whether the kitchen furnishings are arranged conveniently. If a new house is to be built, kitchen plans should be studied earnestly. It is real fun to plan or help plan a kitchen.

Where should utensils be placed? If bread is to be cut into slices, the loaf of bread, a bread board, and a bread knife are needed. If these three items are in different parts of the kitchen, several steps need to be taken to get them together. For efficiency, the container, the board, and the knife should be placed near one another.

Saucepan lids are needed near the stove; a soap shaker, near the sink; an egg beater, near the work table. In deciding where to place kitchen utensils, think where the utensil will be used most. If possible, put the utensil in that place. It is often advisable to put up some hooks, shelves, or wall cupboards in order to keep utensils where they will be needed most.

How large should a kitchen be? In colonial days, large kitchens were built. The kitchens of those days were used for cooking, baking, spinning, weaving, quilting, sewing, soap making, candle making, laundering, and many other kinds of work. The kitchens were used also as dining-living rooms.

To-day, many of these things are not done in our homes. Spinning, weaving, and many other activities are done in factories. The modern home has a laundry, a dining room, and a living room elsewhere. Such large kitchens are unnecessary and inefficient.

For the average small family, a kitchen measuring 8 by 11 feet is a convenient size. If the family is large so that more than one person is usually working in the kitchen, a larger room may be needed.

What should be used on kitchen walls and floors? *Walls* that may be *washed* are desirable in a kitchen. Painted walls are washable provided oil paint is used. Ordinary wall paper cannot be washed. There is, however, a kind of wall paper with a glazed surface that may be washed. Tiled walls are washable, but they cost more than most families can afford.

A *linoleum* covering on the *floor* is easy to clean, easy to walk or stand on, and pleasing in appearance. There are two types

of linoleums — printed and inlaid. The first cost of printed linoleum is less than for the inlaid but it is not nearly so durable.



FIGURE 47. A SWINGING SASH IN A DOOR

The necessary cupboards in a kitchen take up much wall space. A swinging sash built in a door saves the wall space that would be required by a window and at the same time gives light and ventilation. The valance does not exclude much light, and makes the doorway more attractive. It is mounted on the same fixture as the shade.

The pattern being only printed on, the surface soon wears off. The coloring of inlaid linoleum extends down to the foundation fabric. After linoleum is laid, it is well to varnish the printed and to wax the inlaid.

In case the floor of a kitchen is uncovered, it may be painted, varnished, or oiled. The two latter finishes are better for hardwood floors. Small rubber mats placed in front of the sink or work table make standing less tiresome. A linoleum rug may be used in the center of the floor. The margin of the floor may be painted, varnished, or oiled.

How can a kitchen be made attractive? How many hours of the day does your mother spend in the kitchen? Does she usually spend as much time

in the living room as in the kitchen? Since a home maker spends so much time in the kitchen, should it not be a pleasant place?

A light kitchen is attractive. Every kitchen should have at least two windows. When possible, these should be placed on two sides of the room, so there can be good ventilation. It is sometimes advisable to have a window placed in the upper part of a door. If this window is fastened in the door with hinges and latch, it not only lets light into the kitchen, but aids in ventilating. (See Figure 47.)

Light-tinted walls and woodwork also help make a kitchen attractive. Because white suggests cleanliness, white paint is often used on kitchen woodwork, walls, and furniture. Ivory or pale tints also suggest cleanliness and reflect almost as much light. They are attractive.

Color makes a kitchen attractive to most persons. What color shall be used on a kitchen? The answer to this question depends upon the kind of light that comes through the kitchen window. A cold light comes through windows facing north. If the walls of a room with north windows are painted green or gray or blue, one who is sensitive to color feels a chilly atmosphere pervading the room. For kitchens having north or east windows, buff, pale yellow, or pale salmon are pleasing colors. Since warm light comes through windows facing south or west, pale green, gray, or blue is suitable.

A *dash of strong color* often makes a kitchen interesting. Orange voile curtains at north windows suggest a bit of sunlight in a coldly lighted room. Gay chintz curtains or bright pieces of pottery are sometimes pleasing. Painted canisters trimmed with colorful bands or borders may add charm to a kitchen. Ingenuity can be used in making a kitchen attractive. The workroom of a home should be pleasing in appearance.

How high should work surfaces be? Figures 48 and 49 show why the height of work tables should be suited to the height of the worker. No one can *do work well* in an uncomfortable position. No one *likes to do work* that makes the back ache.

To find the proper working height for a table stand straight

and hold the upper part of the arm close to the body. Then bend the arm at the elbow. The distance from the floor to the elbow minus two inches gives the proper working height. Of course, if several persons work at the same table, the height of the table should be determined by the height of the average person. For the younger girls in school, the work table should be

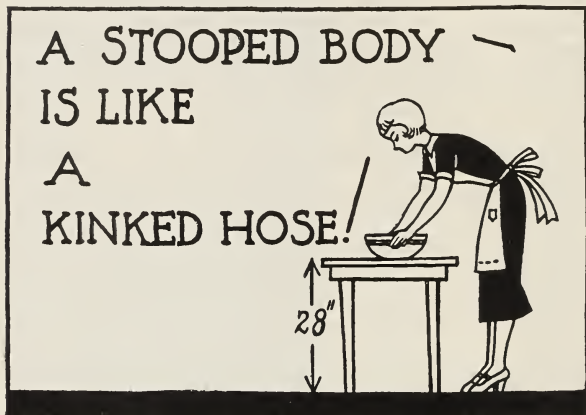


FIGURE 48. A POSTER

Figures 48 and 49 were planned by a high-school pupil studying home making. The legend of this poster was suggested by *The Wisdom of Professor Happy*, published by American Child Health Association.

32 to 33 inches. For the older girls a table about 34 inches high is right. A tall person may require a table 36 inches high.

We often stir foods when they are cooking. A stove should also be of proper working height. Both stationary and portable wash tubs should be constructed of a height that requires as little back bending as possible. The drain board of a sink is a working surface, and so is the bottom of the sink. The drain

boards should be somewhat higher than a work table so that the sink is a comfortable height for dish washing. Cupboards are sometimes built with work shelves. These, of course, should be built of proper height.

Of what material should kitchen table tops be made? Grease stains wood. Although wood is hard to keep clean, many

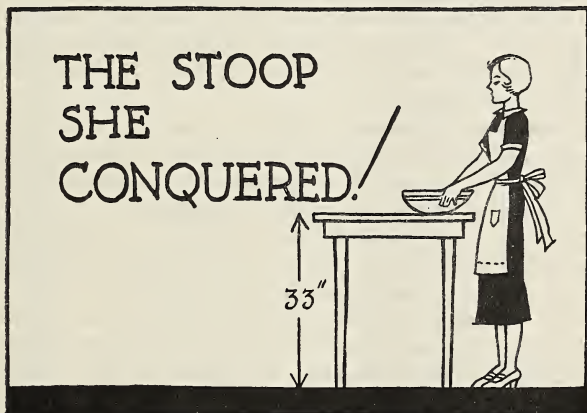


FIGURE 49. A POSTER

A table of this height rather than that of Figure 48 may mean pleasant work instead of drudgery.

kitchen tables have wooden tops. Linoleum, which has proved so satisfactory for kitchen floors, has also proved to be a fine covering for a wooden-topped table. Linoleum prevents dish breakage and clatter and is easy to clean. The linoleum may be cut the size of the table top, then cemented to the wood and bordered with a metal band. Before using, liquid floor wax should be applied to the linoleum. To fill the spaces of the covering, several applications of wax should follow at short intervals.

Sheet plastic material and linoleum — either plain or marbleized in design — are suitable for table tops. Since these materials come in a variety of colors, it is possible to select a color that harmonizes with other colors used in decorating a kitchen. Linoleum can be used to cover also the drain boards of a sink. When used for this purpose, the linoleum can extend up the wall, thus eliminating a crevice in which dirt can collect.

Baked-enamel table tops are easy to clean and pleasing in appearance. They have, however, a hard surface and are more expensive than wooden tops. Acid foods should not come in contact with enamel table tops.

What about cupboards? When you want to get a staple food from the kitchen cupboard, do you find its container in the back row? If so, you have to move other containers in order to get the one you want. Such an arrangement is not efficient. A cupboard shelf is ideal for food containers, if it is just deep enough to hold one row. If space does not permit enough shelf room, shelves for holding utensils may be deeper.

Often the distance between cupboard shelves is greater than it need be. Cupboards with shallow shelves, placed closer together, would prove more convenient. The distance between cupboard shelves should be planned with care. The shelf containing the sugar canister needs greater depth than the one holding the spice jars.

Shall cupboard shelves be left open or closed with doors? If desired, covered containers may be placed on open shelves. Then there are no doors to open and close, or to stand in one's way when left ajar. On the other hand, some persons like the appearance of a kitchen which has all shelves covered. In case a cover is desired, a window shade on a roller may be hung so as to screen the shelves. When the shade is rolled up there is nothing to obstruct access to the shelves. A curtain easily opened and closed by means of cords operated with a pulley, may be hung over cupboard shelves. (See Figure 50.)



FIGURE 50. EASILY-OPERATED CURTAINS FOR A CUPBOARD

Metal rings are sewed to each curtain. The rings are mounted on rod A. At each end of the rod is a pulley fixture shown at B and C. A cord is passed through the rings and through the pulleys. The cord is tied in a knot to the two center rings shown at D and E. This makes it possible to open and close the curtains. Pulling one end of the cord F opens the curtains; pulling the other end closes them. If one has open cupboard shelves and wishes to cover them, such a curtain is easily arranged.

For storing utensils, shelves provided with doors are perhaps more satisfactory than open shelves, since the doors keep out more dust.

Enamel or lacquer paint makes a good finish for the shelves. Because a painted surface is easily cleaned, there is usually no need of placing paper on the shelves.

How may steps be saved between the kitchen and the dining room? A *tea wagon* is a desirable article of furniture. If it has a shelf so that both the top and shelf may be filled with dishes or food, it will save many steps in setting the table and in serving a meal. Because tea wagons are usually made of fine wood, beautifully finished, housekeepers often hesitate to use them every day. In some homes they are used only when company is being entertained. (See Figure 51.)

A *service wagon* is made of metal with a baked-enamel finish or of wood with a finish not easily marred. It can be used with comfort in the kitchen. Such a wagon is truly a *step saver*. It can be used daily in setting the table, in serving, and in clearing the table. (See Figure 52.)

If one has neither a tea wagon nor a service wagon, an ordinary tray is a help in carrying dishes and food from the kitchen to the dining room. To make many trips between the two rooms, carrying single dishes or articles of food, is inefficient.

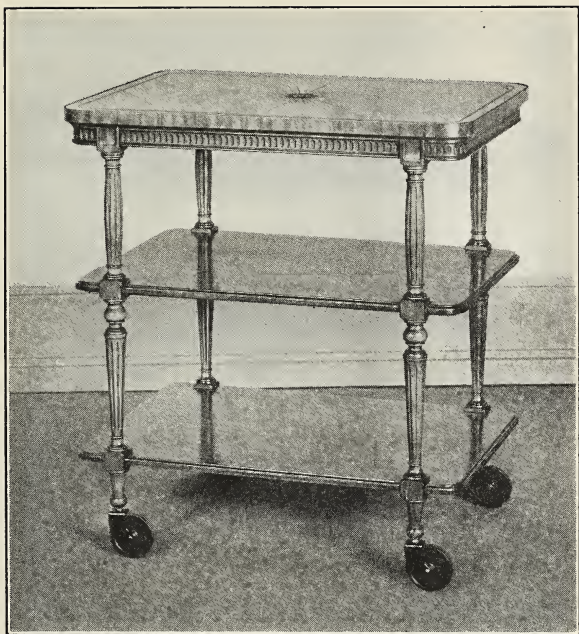
SUMMARY

For efficiency, *kitchen furnishings* should be *arranged* to form

1. Food-preparation center
2. Dish-washing and dish-storage center

Efficient kitchens usually have :

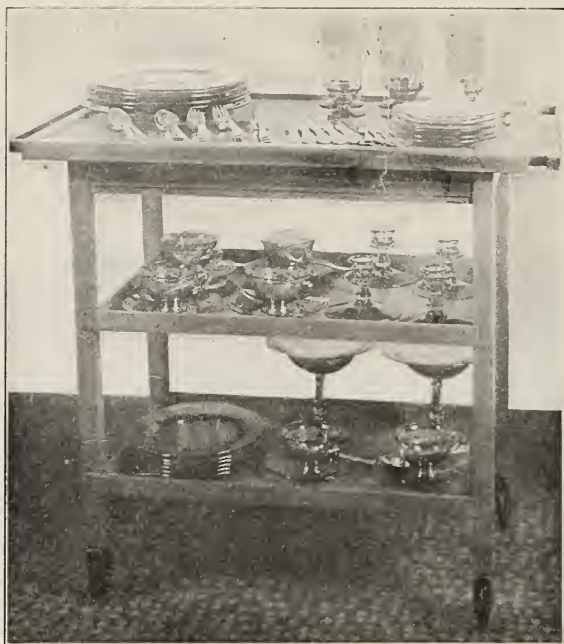
1. Washable walls
2. Floors easily cleaned
3. Working surfaces 32 to 36 inches high
4. Easily-cleaned table tops
5. Shallow cupboard shelves
6. Service wagon



Courtesy Imperial Furniture Company

FIGURE 51. A MODERN TYPE TEA WAGON

This tea wagon is practical because of its glass top and two shelves. It is also very easy to move and guide. Since this movable table is pleasing in design and is beautifully finished, it is suitable for use in either a dining room or a living room.



Good Housekeeping Institute

FIGURE 52. A SERVICE WAGON

This sturdy wagon is a step saver. It will stand constant use and can be cleaned easily.

Since this service wagon has two shelves underneath the top, much can be carried on it at one time. For daily use, it is convenient in setting and clearing the table. It is also very convenient in serving a meal when there is no maid.

Kitchens may be *attractive* because of

1. Light
 - a. plenty of windows
 - b. light-colored walls and furnishings
2. Color
 - a. proper color on walls
 - b. curtains of attractive color
 - c. decorations on canisters and other furnishings

REVIEW QUESTIONS AND EXERCISES

1. Make a list of utensils which it would be desirable to have placed near the worktable.
2. Make a list of utensils which it would be desirable to have placed near the stove.
3. Make a list of utensils which it would be desirable to have placed near the sink.
4. It would take a very large sheet of paper to draw a plan of a kitchen or house actual size. For convenience house plans are made on sheets of paper of practical size. The size of the plan is thus reduced. When the size of a room or house is reduced, the plan is worthless unless all dimensions are reduced *in the same ratio*. Plans reduced in size, having the dimensions in the same ratio as actual size, are said to be *drawn to scale*.

A convenient way of drawing a plan to scale is to use graph paper. If quarter-inch cross-section paper is used, the floor plan of a kitchen whose actual size is 9 by 12 feet may be drawn using $\frac{1}{2}$ inch or 2 square lengths for each foot. The scale would be $\frac{1}{2}$ inch to 1 foot.

In drawing floor plans on this graph paper for a kitchen whose actual dimensions are 9 by 12 feet, count 18 squares in one direction and 24 squares in the other. Draw the outline of the room lightly in pencil. The wall of a room is 6 inches ($\frac{1}{2}$ foot) in thickness. Represent the outline of the wall by drawing a margin 1 square wide around the inside outline of the room as shown in Figure 45, page 145. Decide what two adjacent walls are to be outside walls. The windows will be located, of course, in these walls. Then decide what side of the kitchen will open into the dining room.

Show how the kitchen furnishings should be arranged in the room, as follows: On another piece of graph paper draw the floor space occupied by the sink, stove, refrigerator, cupboards, and table. Label each.

Then cut out these spaces. To do this either measure the size of the sink, stove, etc. in your own home or school or use the following dimensions:

Sink	20 × 36 inches
Drainboards . .	20 × 24 inches, each
Stove	24 × 48 inches
Refrigerator . .	20 × 36 inches
Cupboards . .	20 inches deep (usually made as long as space allows)
Worktable . .	24 × 36 inches

In drawing outlines of these articles on cross-section paper, remember that each section represents 6 inches.

The kitchen should contain at least two *windows*, each about 36 inches wide. One of the windows could be placed in the door as shown in Figure 47, page 148. There should be at least two *doors* in the kitchen — one opening into the dining room and the other opening out-of-doors. The doors should be at least 30 inches wide.

Take the pieces of paper representing the furniture and place them in the outline of the kitchen. The furniture should be arranged, of course, for efficiency as discussed previously. As the furniture is arranged in the kitchen, keep in mind the position and size of the windows and doors. A window or door is indicated in a wall as shown in Figures 45 and 46, pages 145 and 146.

After the pieces of paper representing furniture are finally placed on the kitchen outline, the papers may be pasted on the kitchen floor plan. With your pencil, shade the wall spaces other than the spaces representing the doors and windows.

HOME WORK

1. *Measure your home kitchen and its furnishings. Draw to scale the floor plan of your kitchen and its furnishings.*

2. *Study the arrangement of the equipment in your home kitchen. If the arrangement of your kitchen is not perfect, plan ways of changing its arrangement so as to make it more convenient. Be sure to plan practicable changes. Draw to scale the floor plan of your kitchen arranged so as to make it more convenient.*

3. *Estimating steps saved in using tray in getting breakfast:*

a. Count the number of steps from your kitchen work table to the dining table and return, and from the dish cupboard to the dining table and return.

b. Estimate the number of trips you would make from the kitchen table and dish cupboard to the dining room in setting the table *without a tray or service wagon* for the following breakfast :

Oranges
Rice with Top Milk
Omelet
Toast — Butter
Cocoa

c. Estimate the number of trips you would make *with a tray or service wagon*.

d. Estimate the number of trips you would make from the kitchen table and dish cupboard to the dining room in getting the meal on the table and clearing the table *without a tray or service wagon*.

e. Estimate the number of trips you would make *with a tray or service wagon*.

f. Arrange your results as follows

<i>Setting Table</i>	<i>Getting Meal on Table and Clearing Table</i>
No. trips without tray or wagon	No. trips without tray or wagon
(1) from kitchen to dining table	(1) from kitchen to dining table
(2) from cupboard to dining table	(2) from cupboard to dining table
No. trips with tray or wagon	No. trips with tray or wagon
(1) from kitchen to dining table	(1) from kitchen to dining table
(2) from cupboard to dining table	(2) from cupboard to dining table
<hr/>	
Difference	Difference
Total difference	

g. What is the total number of steps saved in a year for breakfast only, in using a tray or service wagon?

CHAPTER XIV

A DISHWASHING CONTEST

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Do all dishes need to be dried with a towel? Explain.
2. How can spoons, forks, and cups — those dishes which touch the lips — be made clean?
3. Why are dishes which have stood some time after a meal hard to wash?
4. What relation does dishwashing bear to health?
5. Why should dishes be drained before drying?
6. Should a bar of soap stand in dish water? Explain your answer.
7. What is meant by scalding dish towels and cloths? Why should it be done?
8. Should water flow from a faucet while soap is being rubbed on a sink? Explain your answer.
9. What kind of cleaning agent should be used in cleaning a sink?

How can you win a dishwashing contest? In the game of dishwashing you try to win as many points as possible. If you are to win this contest, you must learn to play every part of the game. The parts of a dishwashing contest are :

Scraping dishes	Draining dishes
Putting dishes to soak	Drying only a part of the dishes
Piling the dishes neatly	Putting away dishes neatly
Washing dishes	Caring for dish towels, dish cloths,
Scalding dishes	and sink

Each one of these parts of the game count a certain number of points. If you do all the parts perfectly, you will get 100 points. If you do not do each part perfectly or if you omit any parts, your grade will, of course, be less than 100.

The contest is to take place in your home. Several days or weeks will be needed to complete the contest. Your class will decide how many days and how many times a day the contest will take place. At school you will make a *score card* on which the points are to be graded. Take home this card, which we shall call a *score card*, and ask your mother or some older person to mark your score card so you can take it to school and get credit for your work.

How will your dishwashing be scored? Use the following form:

<i>Steps in Dishwashing</i>	<i>Points</i>	<i>Pupil's Score</i>
Scraping dishes.....	10	
Putting cooking utensils and badly soiled dishes to soak.....	10	
Piling dishes neatly at right of dish pan.....	10	
Washing dishes in hot water, changing the water often.....	10	
Not letting soap stand in water....	5	
Rinsing dishes with scalding water.	15	
Draining dishes.....	10	
Drying glassware, silver, and cooking utensils.....	5	
Putting away dishes neatly.....	5	
Washing sink clean, using no coarse scouring powder.....	10	
Washing dish towel and cloth and hanging neatly to dry.....	10	
Total points.....	100	—

It may appear to you that because many steps are given on the score card, dishwashing is complicated. The process may seem to take much time. However, if your dishwashing tools are arranged as suggested, you will probably be able to do the dishes in less time than formerly. In washing dishes, there are two aims to accomplish: (1) to do the work well and (2) to do it quickly.

Instructions in washing dishes well in the shortest time are given in this chapter.

Why does it pay to make an honest report of your dishwashing? In many of the stories thrown upon the moving-picture screen, there is a villain. Often the story is acted so that the audience knows when the villain is deceitful or dishonest. Have you ever noticed that the villain of a play receives no applause for his cheating or insincerity? Sometimes, the audience hisses at foul play.

The average person admires honesty and fair play not only in an imaginary story, but in real life. In the true story of everyday life, you cannot afford to be the villain. If you play the game unfairly, you are the loser. A pupil may succeed in bluffing for a short time, but usually his associates will discover his dishonesty. You want and need the respect of your parents, teachers, and classmates. To have your friends trust you is one of the most worth-while possessions of your life.

In the dishwashing contest every pupil will find it to his advantage to play fairly and to give an honest report. The one who gives an untruthful report cheats himself.

What is the most important step in dishwashing? A class in college studied dishwashing! Does dishwashing seem a strange subject for a college class to study? Their study of dishwashing was very valuable. The class found that sickness, such as influenza, could often be traced to wrong methods of dishwashing. Such a fact helps one to realize the importance of learning correct ways to wash dishes.

What did the college class find about the effect of dishwashing on sickness? ¹ *It was found that dishes must be rinsed, or better yet, placed in boiling or scalding water, to make them safe.* Let us see why this step in dishwashing is so necessary.

¹ *Note to the Teacher:* See the *Teachers College Record*, volume xxiv, No. 5, page 489, *Studies in Everyday Bacteriology* by Jean Broadhurst and others.

When the lips touch glasses, cups, spoons, or forks, some saliva is left on these dishes. Now saliva almost always contains disease bacteria. These are too tiny to be seen (unless a very powerful microscope is used). Warm soapy water may remove some of the saliva as well as bits of food from the dishes, but it will not remove all the disease bacteria. Dishes are perfectly clean only when the disease bacteria are all removed. To remove them, the dishes must be placed in boiling or scalding water. Water at this temperature will destroy the bacteria on the dishes and make them safe to use.

If dishes are washed at home or at school without a dishwashing machine, it is comfortable to use water in which we can bear our hands. Such water is not hot enough to destroy disease bacteria. If, after washing dishes, they are put in a rack we can rinse them in boiling or scalding water without putting our hands in the water. *Putting dishes in boiling or scalding water is the most important step in dishwashing.* When a dishwashing machine is used for dishes, scalding water can be used for washing dishes as well as for rinsing.

What makes some dishes hard to wash? Have you ever washed a dish on which bits of food had dried for several hours or over night? If so, you surely found the dish hard to wash. Food which dries on dishes is usually hard to remove. We can prevent food from drying on dishes by filling a dish with water as soon as the food is scraped from it. It is a good plan always to put cooking utensils to soak as soon as the food is taken out of them.

Greasy dishes are hard to wash. Soaking them in plain water does not make the process much easier. Before washing utensils in which doughnuts or other foods have been fried, wipe out the utensil with a piece of paper. This will remove the coating of fat which clings to the utensil. Then fill the utensil with water, add a tablespoon of washing soda and let the water heat. When you pour out the hot water, you will find that much

of the grease has disappeared. The utensil will then be much easier to wash.

Before washing the butter plate, it may be wiped off with paper. Since plates are usually quite smooth, much of the butter is removed with the paper. Therefore, heating the butter dish in soda water is usually unnecessary.

Shall you soak soiled dishes in hot water or in cold water? When you learned to poach eggs, you found that the egg began to harden when poured into hot water. When you wash a bowl in which eggs have been beaten, you want to loosen the coating of egg from the bowl. Can you loosen the egg by pouring hot or cold water in the bowl?

If you have ever heated *milk* in a pan, you have seen a coating hardened on the inside of the pan. Heat hardens something in the milk. In soaking a milk pitcher or bottle, should you fill it with hot or cold water?

You have also learned that when *flour* and water are cooked together, a sticky paste is formed. If you pour *hot* water in a bowl having held flour, a sticky paste will be formed. Should you rinse out a dish having held flour with hot or cold water?

You will remember that muffins and many other flour mixtures contain eggs and milk in addition to flour. What would happen to the coating of batter if the bowl is rinsed with hot water? How can you loosen the coating from the bowl?

If you make some fudge or other candy, shall you soak the soiled utensil in hot or cold water? You should be able to answer this question after you have done a little experimenting.

Experiment 12: *To discover whether sugar dissolves more readily in hot or in cold water.*

(a) In a cup or test tube, put about 1 teaspoon of sugar. Now add about 2 tablespoons of *cold* water to the sugar. Stir the contents of the cup or shake the tube. Does the sugar dissolve *at once* in the *cold* water?

(b) Put 1 teaspoon of sugar into a second cup or test tube. Add 2 tablespoons *boiling* water. Stir the contents of the cup or shake the tube. Does the sugar dissolve *at once* in the *hot* water?

(c) Does sugar dissolve more readily in hot or cold water?

(d) If you wanted to rinse out quickly a dish having held molasses or some other sirup, would you use hot or cold water?

What are the main steps in dishwashing?

1. *Scrape the dishes well; put them in neat piles.* Dishes may be scraped with a knife or better with a plate scraper. Soft paper is good also to use in cleaning dishes.

2. *Soak dishes which are hard to wash.* Use cold water for dishes which have held:

- a. uncooked eggs
- b. uncooked flour or starch
- c. milk or cream

Use hot water for dishes which have held:

- a. sugar or sirup
- b. greasy foods
- c. most cooked foods

3. *Wash the dishes in hot, soapy water.* The water should be as hot as the hands can bear it. Change the water often. This is important. If the water is changed often, it does not make much difference in what order the dishes are washed. Do not let the cake of soap soak in the water. Get soap into the water by rubbing a bar of soap several times on the dish cloth or add some soap chips.

4. *Rinse the dishes in boiling water.* Let the dishes stand in the boiling water to destroy disease bacteria which may be on them.

How should dishes be drained? It would take a long time to dry clothes if they were lifted out of the rinsing water without wringing them. It takes longer to dry dishes if they are taken out of the rinsing water and immediately dried on a towel without being drained. After rinsing, the water should be drained from dishes if they are to be dried quickly.

Dishes may be conveniently drained by arranging them in a

rack as they are washed. (See Figure 53.) If the rack is placed in a pan, the scalding water may be poured over the dishes and the dishes may be allowed to stand for a few minutes. Then the rack may be lifted out of the hot water and the dishes allowed to drain.

Should dishes be dried with a towel? How should dish-towels be cared for? There is an old saying which goes: "Man



FIGURE 53. A RACK FOR DRAINING DISHES

Through the center of this drainer the wires are bent so that plates and saucers may be placed upright. The tray at the right end is for draining flat silverware.

works from sun to sun, Woman's work is never done." If work is carefully planned, the time of doing some kinds of home work may be shortened. Towel-drying of most of the dishes is unnecessary. It is best to dry glassware and possibly silver with a towel. But *porcelain or china need not be dried with a towel if it is rinsed in scalding water and then drained*. Dishes are usually cleaner when scalded and allowed to

dry in the air than when dried with a towel.

A great deal of care is needed to keep dish towels and dish cloths clean. They should be washed every day and scalded often. A good way to scald a dish towel or cloth after it has been washed and rinsed is to cover it with cold water. Then heat the water until it boils. Pour off the hot water, wring, stretch, and hang to dry.

How can dishwashing be done more easily and quickly? When one has to stoop while working at the sink, dishwashing is more tiresome than it needs to be. A sink should be placed

high enough so one may stand erect while working at it. Is the sink at your home high enough? If not, plan some way to avoid stooping while working at it. Put a pan or a wooden rack underneath the dish pan.

Do you make unnecessary motions while washing dishes? If your sink has only one drain board, and that drain board is on the right side, you make unnecessary motions. As stated on page 143, when washing dishes you hold a dish in your left hand and wash it with a cloth held in your right hand. Since the dish is in your left hand, it could be placed to drain with the shortest and easiest motion on the left side of the dish pan. If there is only one drain board and it is on the right side of a sink, the left hand will need to make a longer motion in placing the dish to drain.

In case your sink has but one drain board and that board is on the right side, if possible place a shelf or small table on the left. Make dishwashing as easy as possible.

It is interesting to arrange utensils so that you can wash dishes well in a short time. Sometimes the amount of time that can be saved is surprising.

How should a sink be cleaned? Very often coarse scouring powder is used to clean a sink. Let us see if it is wise to use this substance :

A coarse scouring powder will remove the dirt. But if the sink is of enamel or porcelain and has a smooth surface, the coarse scouring powder will, with repeated use, roughen the surface. Then the sink with its roughened surface will be more difficult to clean. A smooth surface is usually easier to keep clean than a rough surface. Dirt settles in crevices and grooves.

In cleaning a sink with a smooth surface, use some material that will clean the sink, but not roughen the surface. This can be done with common soap and water if the soap is applied in the right way. Keep the sink as dry as possible when applying the

soap. Wring out the cloth used in cleaning and then with the hand push any water standing in the sink down the drain pipe. Apply soap to the cloth and wash the sink. *Do not let the water run from the faucet while applying the soap.* After using the soap, rinse the sink by opening the hot-water faucet.

In case a sink has much dirt and grease on it, it can be cleaned more easily with kerosene than with soap. It is convenient to keep on hand for cleaning purposes a small bottle of kerosene. Apply kerosene to a cloth by holding the cloth to the mouth of the bottle and tilting the bottle. Then rub the part of the cloth containing kerosene over the sink.

How can you do your share? Have you ever thought what it would mean to live alone and never talk to any one? We are glad that we can live among people and have friends and associates. But, because we associate with people, we have to consider the rights of others. Boys and girls attending school associate with other pupils. They need to think of the rights their classmates; they need to be good *school citizens*. How can a pupil be a good citizen in a home economics class? One way is to do her share of the work that must be done. When a class has a lesson on cooking food, there are always dishes and dish cloths to wash and sinks to clean. If a pupil leaves some of her dishes unwashed or leaves the sink uncleaned, she is not doing her share. She is not a good school citizen. Can a girl afford to be a shirk? Does not the approval of her teacher and classmates mean much to her? Is not the satisfaction that comes from doing her best worth while? Think it over.

SUMMARY

The *main steps* in dishwashing are :

1. *Scraping* dishes and arranging them in neat piles.
2. *Soaking* dishes which are hard to wash, using cold water for uncooked eggs, uncooked flour or starch, milk or cream; and hot water for sugar or sirup, greasy foods, most cooked foods.
3. *Washing* the dishes in *hot soapy* water, changing the water often.

4. *Rinsing* the dishes in *scalding water* and letting them stand for a few minutes in the water. This is the most important step in dishwashing since scalding water is necessary to destroy any disease bacteria which may be on the dishes.
5. *Draining* the dishes preferably in racks so that the air gets to all parts of the dishes. When dishes are scalded and drained in this way, *towel-drying* of the china or porcelain dishes is *unnecessary*.
6. *Drying glassware*, silver, and utensils on a towel.

Dish towels and cloths need frequent washing and scalding to destroy bacteria which may be on them.

Dishwashing may be made *less tiresome* and the process may be *shortened*

1. By having the *sink* placed at the *proper height*.
2. By having a drain board on each side of the sink or, in case there is only one drain board, at the left side of the sink.

In *cleaning* a *sink* with a smooth surface, use some material such as naphtha soap or kerosene that will clean the sink, but not roughen the surface. Do not use coarse scouring soap on a sink having a smooth finish.

REVIEW QUESTIONS AND EXERCISES

1. Carefully explain why letting dishes stand in scalding water is important.
2. Which dishes — cooking utensils, serving forks, or tumblers — usually appear the most soiled? Which may have the more dangerous kind of soil on them? Explain.
3. One confectioner's store serves ice cream in porcelain dishes. Another store places a paper dish inside of a porcelain dish so that the ice cream comes in contact with the paper dish. Which is probably the safer way of serving ice cream? Why?
4. The girls of a home economics class were asked to prepare and serve refreshments for a school party. One hundred and fifty guests were expected. The girls decided to serve lemonade and cakes. They discussed the problem of serving. The school owned three dozen glasses. Would it be better to use the glass cups and wash them several times while serving or should they buy one hundred and fifty paper cups? Which do you think would have been the better plan for serving the lemonade? Give a reason for your answer.

HOME WORK

1. Wash and dry the dishes at the close of a meal. Note carefully the number of minutes it takes you to do the work.
2. Study the dishwashing equipment in your home. Discuss it with your mother. Devise ways of making dishwashing easier in your home. If possible, make the changes.
3. Wash and dry the same number of dishes as you did before rearranging or changing your dishwashing equipment. Note carefully the number of minutes it takes you to do the work.
4. Report to your teacher the changes you make and the time you now save in washing dishes.

CHAPTER XV

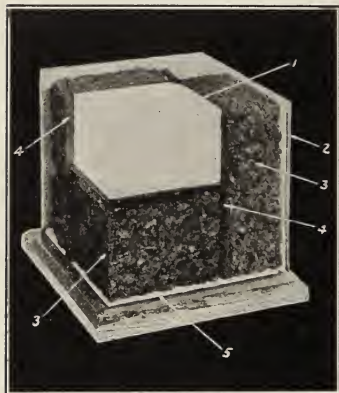
REFRIGERATORS — STOVES AND FIREBUILDING

Can you answer these questions? If not, look for the answers as you study this chapter.

1. How thick are the walls of a refrigerator? Why are they so thick?
2. What kind of material is used for interlining refrigerators?
3. Milk spoils more readily than many foods. Is there any one place in a refrigerator better than another for storing the milk? Explain.
4. Why should ice not be covered with paper?
5. Is it a good plan to let the ice almost or entirely melt before adding more ice to the refrigerator?
6. What is an insulated oven? Why is it desirable?
7. Why is a yellow gas flame objectionable? How can a burner be adjusted so gas will burn with a blue flame?
8. Should the unenameled metal of a stove be oiled with such oils as corn or cottonseed? Why?
9. What causes many of the accidents which occur when gasoline or kerosene stoves are used?
10. What is the advantage of a heat-regulated oven?

What should be considered in buying a refrigerator? *How cool is the inside of a refrigerator* when it is iced or in operation? This is a most important question to determine when buying a refrigerator. According to research, the average temperature in the milk compartment during 24 hours should not exceed 45 degrees Fahrenheit. A good refrigerator (either iced or mechanical) should maintain this temperature in the milk compartment when the room temperature does not exceed 85 degrees F. *How much will it cost to maintain these temperatures* (provided a refrigerator is used intelligently) is another point to investigate.

In an iced refrigerator maintaining the temperature given above, the average ice melting rate should not exceed in 24 hours, 17 pounds in a refrigerator of 3 cubic feet storage space, or 30 pounds in a refrigerator of 7.1 to 10 cubic feet storage space.¹



Seeger Refrigerator Company

FIGURE 54. A SECTION OF A REFRIGERATOR WALL

1. 2, porcelain enamel lining and exterior; 3, cork board; 4, insulating paper; 5, wall board.

What is the purpose of the cork and other insulating materials?

Both the lining and exterior should be durable. The material coating the metal foundation should not chip. It is essential that the lining be easily cleaned. For this reason it should be seamless and have rounded corners.

The *interlining* of a refrigerator box is an insulating material.

The cost of operating a mechanical refrigerator is information that a salesman should be able to give. If a refrigerator maintains a low temperature at reasonable cost, it must be well built. Some important points to investigate are:

1. *The materials of which it is made.* By observing the thickness of the walls and door of a refrigerator one can readily understand that these parts consist of several layers, viz.: (a) the interior (or lining), (b) the exterior, and (c) the interlining. The *lining* and *exterior* of most refrigerators is metal coated with porcelain or with a synthetic

¹ See Better Buymanship Pamphlet No. 19, *Household Refrigerators*, page 11. Household Finance Corporation.

This should be at least two inches thick in both the walls and door. (See Figure 54.)

2. Another important part of a refrigerator to be investigated is the *fit of the doors and security of the locks* or fasteners. The doors should be fitted with fasteners that will latch them tightly and with a rubber gasket or strip around the inside of the door so that there may be no cracks through which warm air may enter. The door should be so tightly closed that a calling card cannot be wedged between the door and box.

3. If you are buying an iced refrigerator, notice whether there is a *separate door on the compartment in which ice is stored*. Efficient refrigerator either have two outer doors as shown in Figure 55 or a single outer door with an inner ice-saving door which keeps warm air from the ice when the outer door is opened.

4. *The size of a refrigerator*, especially the food storage space, needs to be considered. This will depend upon the size of a family, the number of meals prepared each day in a home, and the number of times per week marketing is done. Storage space is measured in cubic feet. A refrigerator of at least 7 cubic feet storage space is

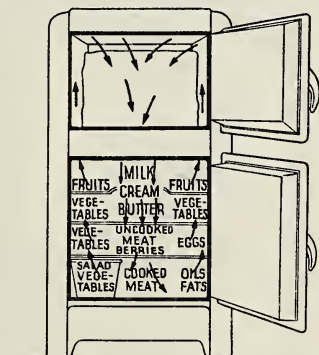


FIGURE 55. FOOD STORAGE IN A TOP ICER REFRIGERATOR

The coldest part of this refrigerator is in the *center portion* just beneath the ice compartment. Here foods that spoil most readily, such as milk, cream, butter, milk desserts, and meat broth, should be placed. Vegetables and most fruits, being odorous foods, should be placed at the sides so their odors will be carried immediately to the ice. Since berries and cherries mold readily they should be placed where the colder air is circulating.

needed by a family of four if two or three meals are served in a home each day and perishable foods (milk and cream excepted) are purchased but once or twice a week. For a family of four

or five, an iced refrigerator should be large enough to hold 100 pounds of ice.



Courtesy Frigidaire

FIGURE 56. AN ICELESS REFRIGERATOR

In the freezing compartment (top center) ice cubes can be made and desserts frozen. Underneath and beside this freezing unit, foods requiring coldest temperatures to prevent spoilage should be stored. For the storage of meat there is a special compartment underneath the freezing unit. Here meat may be kept at a uniform low temperature without alternate freezing and thawing. The two hydrators (bottom shelf) are convenient for storing vegetables, especially salad vegetables.

cloth. If moisture collects on the walls or floor during the week, dry them.

If food is spilled in the refrigerator, wipe it up immediately.

Where should food be placed in a refrigerator?

In Figures 55 and 56 notice that the milk and other foods which spoil readily are placed in the coldest spot. Some spots in a refrigerator are colder than others because the warm air rises to the top and cold air drops to take its place. The air in a good refrigerator keeps *circulating*, as shown in Figure 57.

How should a refrigerator be cared for?

1. *Keep it clean and dry.* Wash it once a week with cold water containing washing soda — 1 tablespoon of washing soda to 1 gallon of water. Work quickly. Wipe with a dry

Wash most foods that are placed in the refrigerator — although berries, cherries, and eggs should not be washed.

Put only clean containers in the refrigerator.

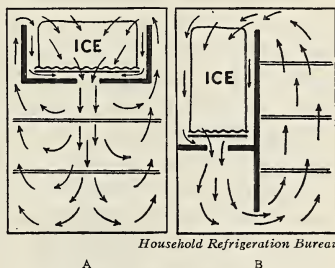
Wash the drain pipe once a week. A slender brush is good for this purpose. Washing soda solution may be poured down the pipe.

2. *Keep the refrigerator well iced.* Keep the ice compartment filled at least one half. If the refrigerator is filled and in less than twenty-four hours more than one half the ice melts away, the refrigerator is not efficient. It is either too small or not well built.

3. *Place neither paper nor food on top of the ice.* Food should be placed on the shelves and floor and not in the ice compartment. If paper or food covers the surface of the ice, it interferes with the circulation of air. Also, the refrigerator does not reach as low a temperature as if the ice were uncovered.

4. *Keep the doors tightly closed.* A refrigerator door should not be slammed to close it. Lift the latch with your hand to close the door. Slamming the door may weaken the latch so that in time it will fail to fasten the door securely.

Do not open the door more often than is necessary. If sev-



Household Refrigeration Bureau

FIGURE 57. CIRCULATION OF AIR IN
A. TOP ICER, B. SIDE ICER

Foods being chilled give up their warmth and also food odors to the air around them. The warmed odor-laden air rises, and comes in contact with the film of water on the surface of the ice. This water, or melted ice, together with the absorbed odors and gases from the food, is then carried away through the drain pipe. The chilled and washed air drops down to replace the warmed air. Thus air keeps circulating.

eral things are to be removed from the refrigerator at one time, it is well to take a tray to the refrigerator before opening it and then quickly place the foods on the tray.

5. *Place no hot foods in the refrigerator.* If foods such as gelatin are to be chilled, let them cool before placing them in the refrigerator.

What are some characteristics of a good gas range? Some points to consider in selecting a gas range are :

1. *Convenient cooking surface.* Formerly it was thought that a gas stove with the oven on the side, *i.e.*, a cabinet range, was most convenient. On such a range it was unnecessary to stoop when placing pans in the oven. Later it was found highly desirable to have on top of the stove not only surface burners, but a working space on which cooking utensils and pans removed from the oven could be placed.

Stoves are now built with this arrangement. Both the baking and broiling ovens are placed underneath the working surface. This is not a great inconvenience; since the oven is heat regulated, very little oven inspection is necessary. On some stoves, covers for the top burners make a working space over the entire top of the stove when the burners are not in use.

2. *Cooking surface of proper height.* On page 149, the disadvantage of stooping when working was mentioned.

3. *Little or no nickel.* The nickeled parts are iron plated with nickel. The nickel wears off in time.

4. *Plain, smooth surfaces.* Scrolls and grooves are dust catchers.

5. *Surface burners close to cooking surface.* (See Figure 58.)

6. *Oven lined with enamel or rust-resisting steel.* The former is preferable.

7. *Heat-regulated oven.* Custards should not be baked at the same temperature as potatoes. Different foods require different baking temperatures. At a food show over nine hundred women guessed the temperature of an oven by inserting their

hands in it. Only three women out of this large number guessed the correct temperature — 370° F. Temperatures varying from 40° F. to 1060° F. were guessed. An oven can be heated to a certain temperature if it is equipped with a heat-regulator. Moreover, the temperature will remain constant. Without a heat-regulator, the temperature of the oven changes so that

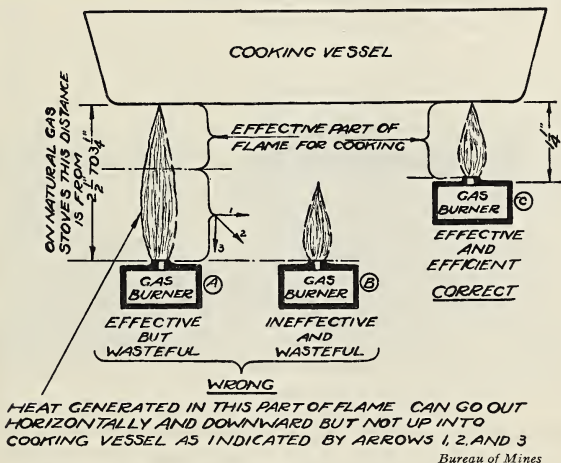


FIGURE 58. RIGHT AND WRONG POSITIONS OF A GAS BURNER

Study this diagram carefully to see why a gas burner should be placed close to the cooking surface. Note which part of the flame is the hottest.

foods in the oven must be watched. Most foods can be more easily and successfully baked if the temperature of the oven is constant. A stove with a heat-regulator costs more than one without, but the greater ease in operating and more uniform results are well worth the extra cost.

Every *heat-regulated oven* needs to be tested after the stove is installed in the kitchen to determine whether the regulator is

registering accurately. The test can be made easily. Adjustment is simple. Reputable stove dealers are willing to make the test and adjustment. *Do not neglect having this done.*

8. *Insulated oven.* A refrigerator needs its walls insulated to keep the heat of the room from passing through the walls. An oven needs its walls insulated to keep the heat from passing out into the room. Insulated ovens save fuel.

How should a gas burner be lighted? It is dangerous to allow gas to escape unburned. Be ready to light the gas when it flows from the burner. Hence strike the match first, then turn on the gas and apply the match. The gas should burn with a blue, not yellow, flame. By turning the gas up or down you may be able to get a blue flame.



George M. Clark & Co.

FIGURE 59. A GAS BURNER SHOWING THE MIXER

At the left end of the burner is the mixer. This illustration shows the parts of the mixer separated. According to the position of the two discs when they are screwed together, much or little air will mix with the gas.

More air will mix with the gas if the openings through which air may enter are made larger. (See Figure 59.) Sometimes a mixer merely needs to be cleaned to give a blue flame.

It is important that the gas flame be blue for at least two reasons: (1) A blue flame is clean; a yellow flame deposits soot on cooking utensils; (2) a blue flame is hotter than a yellow flame.

When a slight roaring sound occurs, too much air is usually being mixed with the gas. Sometimes gas burns in the mixer instead of burning as it escapes from the holes in the burner. Under such circumstances, a *poisonous gas, carbon monoxide*, may be formed. When there is a roaring sound, turn off the

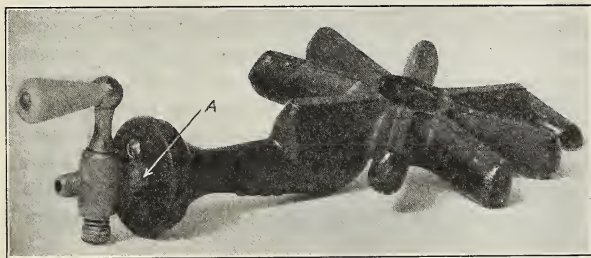
If you are not successful in getting a blue flame, there may be too little air mixing with the gas.

gas at once. Then relight it. It may be necessary to adjust the mixer so less air enters.

The supply of gas entering the burner can be regulated as shown in Figure 60.

How should a gas stove be cared for? Underneath the surface burners there is a tray. If this is enameled, it is easily cleaned. The *tray* should be removed and *washed each day*.

If food boils over, as soon as possible wipe the burner with a cloth. If the holes of the burner become clogged, insert a



George M. Clark & Co.

FIGURE 60. A GAS BURNER SHOWING THE SPUD

The arrow points to a device called a *spud*. By turning the spud with a wrench, the amount of gas entering the burner can be regulated.

skewer or other sharp pointed tool into the holes. Occasionally it may be necessary to remove the burners and wash them. The mixer should be kept clean.

If the burners and neighboring parts are enameled, they may be merely *washed* and dried. If the metal is not protected with enamel, it may be *oiled* after washing to prevent it from rusting. Not all oils are suitable for oiling a stove. Corn and cottonseed oils, for example, form a gummy coating over the metal. This is unpleasant to touch and hard to remove. Beef and mutton tallow, lard, or oleomargarine are better fats to use than the

vegetable oils. There is a substance called *light paraffin oil* which is really not a true oil. This is good to apply on a stove to prevent rusting. Kerosene is also sometimes used although not as desirable as light paraffin oil.

The *cloth* used to oil a stove should be kept in a covered crock or covered metal container. Why?

If the *oven lining* is enameled, it is cleaned by washing. If it is of uncoated metal, it may be cleaned with scouring soap or steel wool. Food that spills on the floor or grating of the oven should be scraped off as soon as possible.

What should we know about using kerosene and gasoline stoves? Accidents sometimes result from the use of kerosene stoves. Often these accidents are caused by filling a kerosene stove while it is lighted. No matter how hurried one may be this should never be done. *Always turn out kerosene burners and let them cool before filling the stove with kerosene.* Of course, it is very inconvenient to do this in the midst of getting a meal. Most of the kerosene containers on stoves are glass. One should notice before starting a meal if there is enough kerosene to finish the cooking.

Although kerosene stoves may be both comfortable and convenient to use in places where there is no gas, their burners need much care. Bits of carbon collect in the burners. These must be removed to prevent the formation of smoke or soot. *Daily* rather than occasional *care* is needed to keep a kerosene stove in good condition.

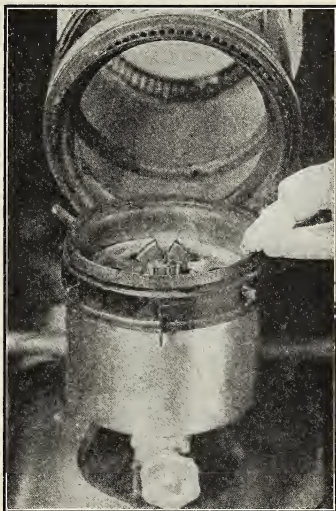
There are several types of kerosene stoves, the chief kinds being the *wick* and *wickless* types. A wick kerosene stove has cotton wicks. These become saturated with kerosene. When a match is applied to the wick, the kerosene on the wick vaporizes and then burns. The end of the wick becomes charred. This charred part should be removed. Do not cut it. Wrap pieces of soft paper around the thumb and first finger. Then carefully pick off the charred part of the wick. (See Figure 61.)

Care should be taken not to make the wick uneven when removing the charred edge.

Most of the so-called wickless kerosene stoves really have wicks, but the wicks are asbestos instead of cotton. Such burners need to be cleaned regularly. The metal chimney of a wickless burner may be removed. The burner and asbestos wick may then be cleaned by brushing with a whisk broom or stiff brush kept for that purpose. The holes of the burner may be pierced with a skewer. If brushing does not remove the carbon, it should be scraped off.

The same caution should be taken in filling a *gasoline* stove as a kerosene. Gasoline is more inflammable than kerosene. *A gasoline stove should never be filled when the gasoline is burning or the burners are hot.*

What are the advantages and disadvantages of an electric stove? An electric stove is clean. No soot or other dirty substances are formed by an electric stove. Such a stove is also easy to operate. Electric stoves are usually very well insulated. Many of them are equipped with fireless cooking devices.



Good Housekeeping Institute

FIGURE 61. CLEANING THE WICK OF A KEROSENE STOVE

A wick cannot be trimmed evenly. It is better to pick off the charred part. Paper wrapped around the thumb and first finger will help protect them from the stain and odor of the charred wick.

It costs more to install an electric stove than other kinds of stoves. The cost of operating it is also greater. However, if care is taken in using the current, the cost of running may be greatly lessened. Because most electric stoves are well insulated, a good deal of cooking can be continued after the current is turned off.

What is needed to build a fire? You have probably built a fire either in the woods, in the kitchen stove, or in the furnace. Regardless of where you build a fire, you must have something to burn. The dry leaves and branches used in the woods; the coal, wood, or gas used in the home for firebuilding are *fuels*. *A fuel is something that burns.* We must have a fuel in order to build a fire.

If you light a match and the burning match drops on the floor, you can put the match out by stepping on it. When you put your foot on the flame you keep the air away from the match. Then the match stops burning. *All fuels need air (or oxygen, which forms a part of the air) to burn.*

The paper of this book is a fuel. There is air in contact with this paper. Why does the paper of your book not burn? In order to make paper or any fuel burn, it must be heated. When a fuel reaches a certain temperature, called its *kindling temperature*, and is supplied with air, it starts to burn. *A fuel must be heated to its kindling temperature in order to burn.* The materials on the tip of a match have a very low kindling temperature.

How is a coal fire built in a kitchen stove or furnace? The portion of the kitchen stove or furnace in which the wood, coal, and other fuels are placed is called the *fire-box*. The fire-box does not have a solid bottom. A grating forms the bottom of the box. If ashes have accumulated in the fire-box, they should be removed before starting to build the fire. Fuels should be placed on a clean grating so they may be supplied with air.

Paper, which is easily heated to its kindling temperature, is

crumpled and placed in the bottom of the fire-box. Then sticks of wood are placed crisscross on the paper. A few pieces of coal may be placed on top of the kindling. Apply a lighted match to the paper. When the paper is heated until it reaches its kindling point, it burns. Then the wood burns, and finally the coal is heated to its kindling point and it burns.

What is a draft? We have learned that a fuel must have air in order to burn. It must have a *constant supply* of air. We also know that smoke arises from a fire. This smoke must pass out-of-doors through the chimney. Thus the fire in the kitchen stove or furnace must have a constant supply of air and an outlet for the smoke. We say that a *draft* is needed to make a fire burn in a stove or furnace.

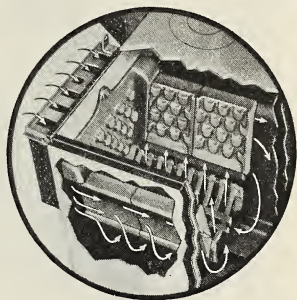


FIGURE 62. FIRE-BOX OF COAL RANGE

The air that must be furnished to a burning fuel enters the stove at the back of the fire-box as indicated by the row of arrows. It circulates around the box and up through the grating.

Let us do some experimenting to learn what a draft is:

Experiment 13: *To show how to arrange a draft.*

(a) Hold a lighted match to the bottom of a candle so as to melt the candle slightly. At once stand the candle upright on a pan or saucer. Light the candle. Over it hold a tall slender chimney so there is about $\frac{1}{2}$ inch space between the pan and the bottom of the candle. Does the candle keep on burning after the chimney is held over it?

(b) Continue to hold the candle as directed in (a). Place a saucer or a piece of cardboard on top of the chimney. Does the candle continue to burn? Explain the behavior of the candle.

(c) Remove the saucer or cardboard and chimney. Relight the candle. Place the chimney over the lighted candle and let the chimney rest on the pan. Does the candle continue to burn? Explain.



Wrought Iron Range Co., St. Louis, Missouri

FIGURE 63. *HOME COMFORT*—A MODERN COAL RANGE SHOWING
INDIRECT DRAFT

A, Fire-box ; B, Ash pan ; C, Oven ; D, Water reservoir.

The arrows around the fire-box show the direction of the air which enters from the back of the stove as explained in Figure 62. Since the damper in the stove pipe is arranged for an indirect draft, the hot gases (formed by the burning fuels) must pass over, around, and under the oven. They then pass up the stove pipe into the chimney and escape into the air.

The hot gases from the burning fuel do not enter the oven, but they heat the oven. The wavy arrows show the circulation of warmed air around and through the oven. The warmed air circulating insures a uniform temperature in every part of the oven.

The burning fuels heat not only the oven but the water shown in the reservoir at D.

From Experiment 13 we see that a continuous stream of air cannot be supplied to a fuel unless there is an opening both *below* and *above* the fuel. In a stove the air enters through the grating of a fire-box. (See Figures 62 and 63.) The gases formed by the burning fuels pass into the chimney.

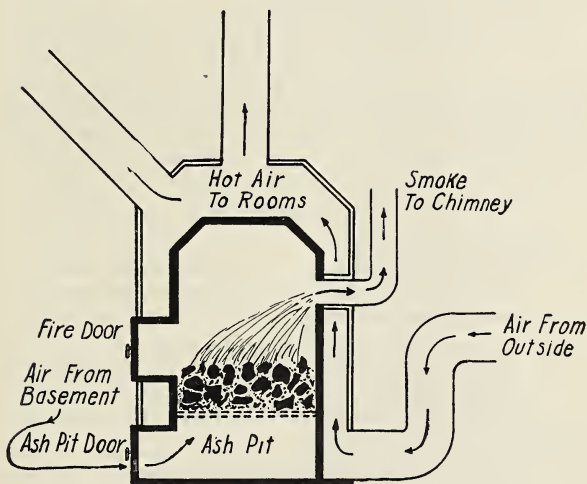


FIGURE 64. A HOT-AIR FURNACE

Whence comes the air which is heated and carried to the different rooms? Whence comes the air needed to make the fuels burn? How do the gases and smoke formed by the burning fuels escape?

Inside a stove or furnace there are always small doors called *dampers*. These small doors or dampers open or close the passage way into the chimney. When we start a fire the dampers should be arranged so that the smoke can pass out through the chimney in a direct path. When the dampers are so arranged, we say there is a *direct draft*.

How is the oven of a coal range heated? When the dampers of a coal range are arranged so that there is a direct draft, the top of the stove is heated. With the dampers so arranged, the bottom of the oven would be heated only slightly. It would not be hot enough to brown a food on the bottom. How the oven is heated is explained in Figure 63.

How does a hot-air furnace heat a house? A hot-air furnace is a stove with a jacket of air surrounding it. (See Figure 64.) The furnace stove as well as a kitchen stove must have a draft. When a fire is built in a hot-air furnace, the air in the jacket surrounding the stove is heated. By means of pipes this hot air is carried to the different rooms of a house.

SUMMARY

A refrigerator should have :

- | | |
|------------------------------|--------------------------|
| 1. Well-insulated walls | 4. Easily-cleaned lining |
| 2. Tight joints | 5. Good circulation |
| 3. Secure fasteners or locks | |

Points to remember in caring for a refrigerator are :

- | | |
|---------------------------------|-----------------------------------|
| 1. Keep it clean and dry. | 4. Keep the doors tightly closed. |
| 2. Keep it well iced. | |
| 3. Place nothing on top of ice. | 5. Place no hot foods in it. |

Some characteristics of a good gas range are :

1. Convenient cooking surface with both burners and working space
2. Cooking surface of proper height
3. Little or no nickel
4. Plain smooth surfaces
5. Surface burners close to cooking surface
6. Oven lined with enamel or rust-resisting steel
7. Heat-regulated oven
8. Insulated oven

Points to remember in *caring* for a *gas stove* :

1. Wash the removable tray daily.
2. When food spills on the burners, wipe them as soon as possible.
3. Occasionally remove the burners and clean them.

4. Keep the mixer clean.
5. Apply light paraffin oil to the uncoated metallic parts.
6. Keep the oven floor and grating clean.

Avoid filling a gasoline or kerosene stove when the burners are lighted.

Essentials for building a fire are *fuel*, *heat*, and *air* (or oxygen, which forms a part of the air). In *building* a fire all *essentials* for burning must be supplied.

REVIEW QUESTIONS AND EXERCISES

Each of the following statements is completed in more than one way. Only one way is correct. Read each statement carefully. Decide which is the best word or phrase to complete it. Then copy the sentence, completing it with the best word or phrase.

1. Before adding more ice, the ice compartment in a refrigerator should be (a) at least half full (b) at least a quarter full (c) empty.
2. A cabinet range has the oven (a) below the cooking surface (b) above the cooking surface (c) at the side of the cooking surface.
3. A yellow flame (a) is hotter than a blue flame (b) is cleaner than a blue flame (c) deposits soot on cooking utensils.
4. A yellow flame may be caused by (a) too much air mixing with the gas (b) too little air mixing with the gas.
5. Unenameled metal parts of a stove should be oiled with (a) cottonseed oil (b) light paraffin oil (c) corn oil (d) linseed oil.
6. In a refrigerator iced on the side, place milk (a) on the upper shelf (b) on the middle shelf (c) on the lower shelf just beneath the ice.
7. For the weekly cleaning of a refrigerator wash it with soda water containing (a) 1 tablespoon washing soda to 1 gallon of water (b) 1 tablespoon washing soda to 1 quart water (c) 2 tablespoons washing soda to 1 gallon water.
8. In starting a coal fire, the dampers should be arranged for (a) a direct draft (b) an indirect draft.
9. In starting a fire (a) only one of the essentials for burning need be supplied (b) only two of the essentials for burning need be supplied (c) all of the essentials for burning need be supplied.
10. The cleanest source of heat is (a) gas (b) kerosene (c) gasoline (d) electricity.

HOME WORK

1. Study Figure 65 until you are able to read a gas meter. If you have a gas meter in your home, read the meter on one day. Then read

it the next two days. Bring a record of the three readings to your teacher.

2. Study Figure 66 until you are able to read an electric meter. If you have an electric meter, read it on three consecutive days. Bring a record of the three readings to your teacher.



East Ohio Gas Company

FIGURE 65. DIALS OF A GAS METER

Gas is measured in *cubic feet*. Read the left dial first, then the others in succession. When the hand is between two numbers, read the smaller number, *i.e.*, the number the hand has passed. If the hand is directly on a number, read that number. Since the last dial indicates hundreds, add two ciphers to the last reading. These dials read: 056,300.

To find the amount of gas used since the last reading subtract the former reading from the present reading.



Illuminating Company of Cleveland

FIGURE 66. DIALS OF AN ELECTRIC METER

Electricity is read in *kilowatt hours*. Read from left to right, reading the number that the hand has passed or the number on which the hand rests. Since the last dial indicates units, no ciphers should be added. These dials read: 8889 kilowatt hours. The amount of electricity consumed since the last reading is found by subtracting the former from the present reading.

CHAPTER XVI

BUDGETING TIME AND MONEY

Can you answer these questions ? If not, look for the answers as you study this chapter.

1. Mention at least one way in which time is often wasted in school.
2. Why is a dish cloth an inefficient tool for washing a grater? What should be used?
3. If a family own their own home, do they pay nothing for rent?
4. Why are you under obligation to your parents to take good care of your clothes?
5. What is a budget? What is a time budget?
6. What are six chief expenditures of a household?
7. What percentage of the income should be paid for rent?
8. Is it better to study a lesson for one continuous period of time or to study it at two different times?

How can you make the most of your time ? It was once said : “ Do not delay, the golden moments fly.” Time is precious; *your* time is valuable. It has been estimated that the time a pupil spends doing his work well in high school is worth more than he may realize. This is because the boy or girl who finishes high school earns much more in later life than the one who does not go to high school. A part of your education should consist in learning how to make the most of your time. When boys and girls are not making the most of their time in school, poor grades come as a result. Teachers have found that often the trouble is that the day’s work and play have not been planned. Time is wasted.

There are several ways in which time may be wasted. Time is often lost in deciding what to do next. This loss of time may be corrected by having a *plan for spending your time* and in

following that plan. In other words, a *time budget* helps you to economize time and to get the most out of it.

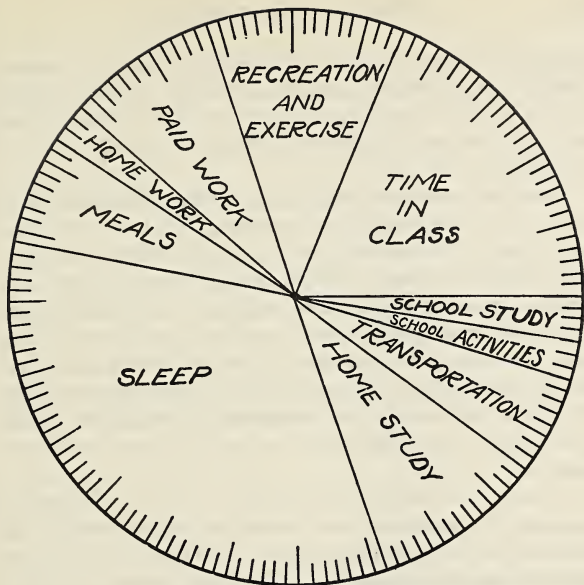
One way to make a time budget is shown in Figure 67. Carefully think over all the things you ought to do each day. Then determine the amount of time that each requires. The time in class, of course, is determined by your school program. The time for study in school is also arranged for you. If you have not already done so, you will probably have to notice how much time is required in going to and from school.

You will have to determine, for yourself, the time spent in study at home. In planning for that time keep in mind what has been found to be the best way to study a lesson. *Two study periods for each lesson* have proved to be better than one continuous period. Plan a certain time to study each lesson once. Also plan time to go over each lesson a second time. During the second period of study, it is a good plan to test yourself to find out whether you know and understand your lesson. In case there is any question in your mind about the amount of time you need to spend in home study, it would be well to discuss the matter with your class teacher.

You will notice in the time budget that not only *home study* but *home work* is listed. Having a definite time each day to devote to work in your home gives you the opportunity of doing your share as a worthy home member. With regular work you can do much that will relieve your mother and prove a help to the entire family.

What about a Saturday time budget? You probably do not go to school on Saturday. Your program for that day will be different from that of other week days. Saturday is the day when you have time for more home work. In order to make the most of the day, would it not be well to make a *Saturday time budget*?

The work you will need to do on Saturday will probably not be exactly like that of any of the other pupils of your class. Each



East Technical High School, Cleveland — Adapted

FIGURE 67. A SUGGESTED TIME BUDGET

The entire circumference represents 24 hours. The longer lines divide the circle into hours and the shorter ones into 10-minute periods.

To make a budget for your own use draw a circle. With your compass set for the same radius, divide the circumference into six sections. Then divide each of these larger sections into four sections. You will then have the circumference divided into twenty-four sections, each one representing an hour. If the class periods in your school are one hour in length, this division will probably be sufficient. If your class periods are less than one hour further division into 10-minute periods may be made. Determine the time spent on each activity during 24 hours. Draw radii in the proper places. If your time is not well spent, rearrange your time budget and follow it.

Another way of making a time budget is to use graph paper. Rule two vertical lines, dividing a page into three columns. With red pencil, draw nine horizontal lines, each 6 lines apart. The red pencil lines represent one-hour periods; each horizontal line of the paper a 10-minute period.

will need to work out his own schedule. Going to market; cleaning the refrigerator, the stove, the sink; washing dishes; making a dessert; getting one or more meals; cleaning your own room and making beds may be some of the kinds of work you will do.

It was mentioned that time is often lost in deciding what to do next. Time may be lost also by leaving a piece of work before completing it. Sometimes a second piece of work is begun before the first is finished. This means that one will have to go back to the first piece of work to complete it. Changing several times from one kind of work to another usually means loss of time. In making a time budget, it is well to make plans so that each piece of work can be completed before commencing another. Of course, there are often unexpected interruptions. When these occur, we have to do the best we can under the circumstances.

To make a Saturday time budget, it will be necessary to determine (1) what work is to be done on Saturday, and (2) the time required for each piece of work. While timing a piece of work we can often learn to do it more efficiently. This is discussed in the following paragraphs.

How can each piece of work be done efficiently? We have learned how the kitchen equipment should be arranged for efficiency. To make the most of one's time, it is necessary to know how to do a piece of work well in the shortest time. After we have efficiently arranged equipment, we need to know how to work efficiently; that is, work with the least waste of energy and time. To do this the following suggestions may help you.

1. *Collect all materials and tools needed for a piece of work.* If you are baking a cake, for example, time will be lost if, after starting to mix it, you find you have forgotten to get the milk. The milk should have been brought to the work table along with the eggs and butter or other fat. If you are cleaning the refrigerator, time will be lost if, after starting, you find you have for-

gotten to get the brush for cleaning the drain pipe. Stopping work to get the brush and then beginning again means a loss of time.

2. *Use the right tool.* You can wash a grater easily and quickly with a brush. Food is lodged in the crevices of a grater. The bristles get into the crevices of the grater and clean it quickly. If you use a cloth in attempting to clean it, time is lost, the cloth is worn or torn, and the work is usually poorly done.

It takes a very few minutes to grind a piece of meat in a food chopper. It takes much longer to chop the same quantity of meat in a chopping bowl, using a chopping knife. Of course, it may take more time to take the food chopper apart and wash each part than it does to wash the chopping bowl and knife. But the extra time used in washing the food chopper does not amount to nearly as much as the extra time required for chopping when the bowl and knife are used. The food chopper is the more efficient tool.

3. *If possible, keep on with one kind of motion before changing to another.* In cleaning a refrigerator, it should be both washed and dried. Time is saved if all parts are washed before drying. Of course, where a process is long, it may be restful to change occasionally from one kind of motion to another. There are exceptions to almost all rules.

4. *Study the motions made in doing a piece of work.* In our dishwashing contest, we learned that it was possible in washing dishes not only to save motions but to make easier motions. If we study the motions in any piece of work we do, we can usually find a way to reduce the number and to make them easier. When we accomplish this, work ceases to be drudgery. It becomes less tiresome; we like it better.

To attempt to do a piece of work more efficiently and thus save some time may become very interesting. Before completing your Saturday budget, it would be interesting for the entire class to make time studies of such pieces of work as

cleaning the refrigerator, stove, or sink. A time study could be made also of dressing for school in the morning. Each piece of work should be repeated to see if the time could be lessened. The quality of work should, of course, not be slighted. If the reports are placed on the blackboard, it is interesting to see the progress each pupil makes in doing her work more efficiently. Directions for such a study are given on page 202.

How much did you spend yesterday? At the close of a day did you ever wonder where the money you had when you started from home in the morning had gone? It is surprising sometimes the way money disappears. In order to keep track of how much we spend it is well to keep an account. You can easily remember how much you spent yesterday.

Think over everything you did yesterday for which you spent money. Perhaps you rode on the street car, bought a pencil or tablet, and bought your lunch. It may be that you went downtown and purchased some gloves or other article of clothing.

On a piece of paper, put a list of your yesterday's expenses. Do not sign your name to the account. Have a class discussion of the lists. You will doubtless find that some of the expenses were necessary, while others were unnecessary.¹ It is so easy to spend money thoughtlessly. A nickel or a dime seems a very small amount to spend. But these small amounts quickly count up, making surprisingly large sums. A woman who makes a business of advising people how to spend wisely says: "On moderate incomes, it is the ten-cent and not the ten-dollar expenditure which causes the trouble. One thinks twice before parting with ten dollars, but one 'flips a dime' without even a thought."²

¹ *Note to the Teacher:* A suggestion for conducting *impersonally* such a discussion follows: Let the unsigned accounts be collected face down on a tray. Then picking up the slips at random from the tray, let the class discuss the expense items. Impersonal comments upon wise and foolish expenditures should be invited.

² *Harnessing the Dollar* by Sarah J. MacLeod, Director of Home Economics, Society for Savings, Cleveland.

How expensive are you? It costs money to live in a house. Whether your family owns or rents the house, it means expense.

It costs money to heat and light the house in which you live.

The clothes you wear cost money; it costs money to launder them.

The food you eat at home costs money; for the lunches you may buy at school, money must be spent.

Your books and car fare cost money; it may be that you go to amusements or entertainments or take music lessons — these cost money.

Have you ever thought of counting up the money that is spent on you each month? If you learned something from the discussion of yesterday's expenditures, you can probably learn more from a month's expenditures.

If there are five in your family, count the share paid for you for rent as one fifth of the month's rent. For rent, groceries, fuel, light, laundering, and any other work for which help is paid a fraction of the month's cost should be figured as your share. The fraction will depend, of course, upon the number in your family. The amount actually spent per month for your clothes, lunches, books, car fare, etc., should be computed as your personal expense.

If your family does not pay rent, but owns the home in which you live, it is costing money to live in your own home. If you moved and rented your house, you would get money for your home. Hence you should charge as rent the rent you would have to pay if some one else owned your home.

You probably do not buy the same amount of clothing each month. Compute the cost of your clothes for an average month. Or compute the cost for a year and take one twelfth of the amount as the cost for a month. In case you have a new coat once in two years, include half the cost of your coat in the year's clothing cost.

You probably buy most of your books at the beginning of the term. Count the cost for the term and divide the sum by six.

Directions for computing the sum paid out for you in one month may be summarized as follows :

- Fraction of monthly rent
- Fraction of monthly grocery, meat, and ice bill
- Fraction of monthly fuel and light bill
- Fraction of monthly laundering or home-work bill
- Monthly cost of your clothes
- Monthly cost of your lunches, car fare, etc.
- Monthly cost of books and other school supplies
- Monthly cost of amusements or private lessons
- Monthly dentist's or doctor's bill
- Any expense item not included in the foregoing

In a class it is interesting to have each pupil put her total monthly expense on a slip of paper. The paper should not be signed. Then the slips may be collected and the amounts added. From the sum the average monthly expense account of the pupils of the class may be obtained.

What is your responsibility regarding your expense account?

You probably have found that your parents pay out much more for you each month than you imagined. They may be making many sacrifices to pay your expense account. It seems only fair that *you* should have some responsibility about the money spent for you.

If yesterday's expense or your monthly expense account shows that you are spending money foolishly or carelessly, you should resolve to stop spending money for useless and even harmful things. A good policy to follow is *to think twice before spending money*.

When you examine your expense account, it may be that you will find that more is spent for your clothes or shoes than for those of the average pupil. This may be due to carelessness. Clothes and shoes that are well cared for do not wear out so quickly as those that are carelessly treated. You owe it to your-

self and to your parents to *take good care of the clothes* they buy for you.

Another responsibility you have is to *choose wholesome food*. In chapter xviii, you will learn what kind of food you should select if you buy your lunch at school. If you bring a lunch from home, suggestions for preparing a wholesome box lunch are given.

If your expense account shows a doctor's bill, it may be that you are not taking care of your health. Suggestions for *keeping well* are given in chapter xxxiii. *If you are wise, you will take good care of your health.*

What is a budget? In some families there are *fat days* followed by *lean days*. When the income is received or pay day arrives, money is spent freely. So much is spent at this time that before the next money is received, there is little or nothing to spend. If such a family followed a *plan* for spending their income, there would probably be no lean days.

You have learned that time may be wasted when no plan for spending time is followed. Money may be wasted when no plan for spending money is followed. You learned that a time budget was a plan for spending time. A money budget is a plan for spending money. The word *budget* is commonly applied to the spending of the income. *A budget is a plan for spending the income.*

The way money is spent in a home plays an important part in the success of a home. Indeed, happiness that should pervade every home may be blasted because money is unwisely spent. Following a plan for spending the family income has helped to make many families successful and happy.

How is a budget made? Spending the income is such an important matter that advising people how to spend the income wisely has come to be a business. There are, in the employ of some banks and savings institutions, women who spend all their time helping people with problems about the spending of their income.

Persons who have had much experience in making budgets are quite generally agreed that household expenditures include :

- | | |
|-----------------------|----------------|
| 1. Food | 4. Clothing |
| 2. Shelter | 5. Advancement |
| 3. Operating expenses | 6. Savings |

Food expenditure includes the grocery, market, meat, and ice account. It includes money spent for meals eaten at home or in a public eating place.

Shelter means rent for those who do not own the house in which they live. For those owning their own home, it includes taxes, insurance, payments and interest on a mortgage, and repairs.

Operating expenses include fuel, light, telephone, laundering, and other work for which money is paid.

Clothing expenses include anything spent for wearing apparel.

Advancement expenses include that which is spent for improvement of any kind, such as education, travel, vacations, doctor's and dentist's services. It also includes money spent for amusements, entertainments, furniture, jewelry, and automobiles.

Savings include savings account in a bank or building and loan association, life insurance, and money invested in property, business, or other organization.

No two families have the same needs. Even though two families are the same in number and have the same income, there is no one plan for spending that will suit them both. Each family should work out its own budget.

It may be easier for some persons to work out a budget, if an average budget is used as the basis. The commonly accepted amounts for the different items of a budget are :

- Food — 25% of the income
- Shelter — 20 to 25% of the income
- Operating expenses — 10% of the income
- Clothing — 15% of the income
- Advancement — 15 to 20% of the income
- Savings — 10 to 15% of the income

A budget should be flexible. If a plan for spending is found to be faulty, the budget should be changed until a satisfactory plan is made.

What is gained by following a budget? Any one can get rid of an income. It takes careful planning to get full value out of an income. Some persons think that budgeting an income means merely saving. It should mean saving a reasonable amount. But it should also mean *getting out of your money that which you most need and desire*. When an income is budgeted, wasteful spending may be discovered and checked. A budget makes one know what can be afforded and what cannot be afforded. When a person has the assurance that he can afford to buy something — whether that something be a box of candy or an automobile — he enjoys that something more fully. A budget makes one's mind easier. When a definite plan is made for spending the income, there will be enough money to pay the grocery bill, the taxes, and such accidental expenses as doctor's bills. There will be no worry about having money to pay for the necessities.

How can a family live up to a budget? Many of the resolutions which are made on New Year's Day prove worthless because they are not kept. A budget is useless if it is not followed. You cannot tell how much you are spending for food and the various items of a budget unless you keep account of what you spend. This means that you must keep a record of what you spend.

It is believed that the easiest way to keep an account is to have a book divided into columns. The items of the budget should be used as headings for the columns. During the month all expenditures should be entered in the book in the proper column. At the end of the month each column should be added. The sums of all the columns should then be added to obtain the total monthly expense.

Some persons become discouraged, in keeping accounts,

when the accounts do not *balance*, that is, the money spent does not exactly equal the money received. Although it is desirable to have accounts balance, it is believed that it is not necessary. It is much better to have some sort of account, even though it does not balance, than no account. Even though an account is slightly inaccurate, it may show very well how much is being spent.

Note to the Teacher: You may consider it advisable to have your pupils keep a record of their expenses in a small book such as *Personal Expense Book* by Kelley, Higbee, and Stevens, Webb Book Publishing Company, or the *Personal Expense Book* by Thurston, the Manual Arts Press.

How should money spent for food be budgeted? A good way to check on whether we are spending money wisely for food is to divide each dollar used in buying food into parts as suggested by the United States Department of Agriculture.

DIETS FOR FAMILIES WITH CHILDREN ¹

FOODS	ADEQUATE DIET AT MODERATE COST	ADEQUATE DIET AT MINIMUM COST	RESTRICTED DIET FOR EMERGENCY USE
Vegetables, fruits . .	30 to 25 cents ($\frac{1}{4}$ or more)	25 to 20 cents ($\frac{1}{4}$ or less)	25 to 20 cents ($\frac{1}{4}$ or less)
Milk, cheese . . .	25 to 30 cents ($\frac{1}{4}$ or more)	30 to 35 cents ($\frac{1}{3}$ or more)	25 to 30 cents ($\frac{1}{4}$ or more)
Lean meat, fish, eggs .	20 to 15 cents ($\frac{1}{5}$ or less)	15 cents (about $\frac{1}{7}$)	10 cents (about $\frac{1}{10}$)
Bread, flour, cereals .	10 cents (about $\frac{1}{10}$)	15 cents (about $\frac{1}{7}$)	20 cents ($\frac{1}{5}$ or more)
Fats, sugars, accessories	15 to 20 cents (about $\frac{1}{6}$)	15 cents (about $\frac{1}{7}$)	20 cents (about $\frac{1}{5}$)

SUMMARY

A *time budget* is a plan for the use of time.

Work is *efficient* when it is done with the *least waste of energy* in the *shortest possible time*.

¹ U. S. Department of Agriculture, Miscellaneous Publication 183, pages 14, 15.

To *work efficiently* in the home :

1. Collect all materials and tools needed for work.
2. Use the right tool.
3. If possible, finish one kind of motion before changing to another.
4. Study the motions made in doing work (*a*) to reduce the number of motions, and (*b*) to make easier motions.

A *budget* is a plan for *spending* the *income*.

Household expenditures and *percentage of income* are commonly divided as follows :

- | | |
|-----------------------------|----------------------------|
| 1. Food — 25% | 4. Clothing — 15% |
| 2. Shelter — 20 to 25% | 5. Advancement — 15 to 20% |
| 3. Operating expenses — 10% | 6. Savings — 10 to 15% |

The *advantages* of following a budget are :

1. Getting out of the income that which you need and desire most.
2. Discovering wasteful spending and checking it.
3. Knowing what one can and cannot afford.
4. Freedom from worry regarding necessary and emergency expenses.

In order to follow a budget, it is necessary to keep *accounts*.

REVIEW QUESTIONS AND EXERCISES

1. How many days are there in your school year? If your time in school is worth \$10 a day after you graduate from high school, how much can you credit to your educational account in a year? in 3 years?

2. State at least five reasons other than gain in money why it pays to complete high school.

3. What advantages has making a time budget, and following it, brought you in school work, home work, and recreation?

4. An authority on budgets ¹ gives for the division of the income for a family of five, the following suggestions :

Income each month	\$150 . . .	\$250
Savings	5 . . .	35
Food	55 . . .	55
Shelter	38 . . .	60
Clothing	30 . . .	40
Operating	15 . . .	25
Advancement	7 . . .	35

¹ Sarah J. MacLeod, Director of Home Economics, Society for Savings, Cleveland.

Compare the *amounts* for food. How do you account for their being the same when all other items differ? What *percentage* of each income is allotted to food? Why is there a lower percentage spent for food in the higher income? Compare these percentages with the percentage for food given on page 198. What percentage of each income is allotted to shelter? Compare these percentages with the percentage for shelter given on page 198.

HOME WORK

1. Time yourself when you dress for school in the morning. At school record your name, date, and number of minutes taken to dress.

2. Think out ways of saving steps and saving motions so you can dress with less effort in a shorter time.

3. When you dress, carry out your plans for saving effort and time. Of course neither your appearance nor the appearance of your room must suffer. Time yourself again. Directly underneath your first report, record the date and number of minutes taken to dress. Is there improvement?

4. Clean the refrigerator, stove, or sink at home. Time yourself. At school record your name and number of minutes required to do the cleaning.

5. Think out ways of saving steps and saving motions or making easier motions. It may be possible to put your cleaning tools in a more convenient place.

6. Clean the refrigerator sink or stove a second time, carrying out your plans for saving effort and time. Time yourself. Directly underneath your first report, record the date and number of minutes required in the cleaning process. Is there any improvement?

CHAPTER XVII

THE DINING ROOM AND ITS FURNISHINGS

Can you answer these questions? If not, look for the answers as you read this chapter.

1. What articles are suitable for the top of a buffet? How should they be arranged?
2. Which is more suitable for a small dining room — wall paper of decided figure or plain (or nearly plain) wall paper? Why?
3. Why should a buffet be placed parallel with one of the walls rather than across a corner?
4. What is meant by formal balance?
5. How can a glass dish be tested for soundness?
6. What is the difference between earthenware and porcelain dishes?
7. What is matt gold?
8. Is sterling silver pure silver?
9. How can tarnished silverware be cleaned without rubbing with a powder?
10. Why is linen more desirable than cotton for a tablecloth?

What makes a dining room inviting? We are advised to discuss pleasant things at meal time. We are told that cheerfulness helps digestion. A dining room, then, should look cheerful. The sun streaming through the east windows of a dining room may help one to start the day's work in the proper mood. If we are not so fortunate as to have a dining room whose light is cheered by the sun, color may be used to suggest sunlight and cheerfulness. As suggested for the kitchen (see page 149), if there are north windows in the room, use warm colors. When there are windows facing east, warm colors may be used also since the sun soon leaves the east windows in the morning. For rooms with windows facing south or west, the cool colors may be used.

No matter in which direction the dining room faces, the walls should be *light*. Dark walls suggest gloom. Ivory or buff for the north room and light gray or grayish blue or green for the south room make suitable wall covering for the average dining

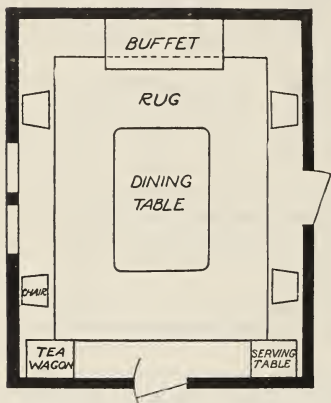


FIGURE 68. A GOOD ARRANGEMENT OF FURNITURE IN A DINING ROOM

The room represented here is rectangular in shape. The shape of the rug and its position on the floor are in harmony with the shape of the room. The furniture is placed in accord with the outline of the room. Moreover, the furniture is well distributed over the room. The chairs are not only placed symmetrically but arranged so that they can be drawn conveniently to the table.

the dining table, old brass should be scoured.

How should furnishings be placed? Figures 68 and 69 represent floor plans of a dining room showing the position of the dining table, buffet, serving table, tea wagon, and rugs. In

Some prefer a figured wall paper in the dining room. This may be pleasing, provided the design is an all-over figure and suitable for the size of the room. Figured walls may make a room appear smaller. For the small dining room, plain or almost plain walls make the room appear larger than figured walls.

A dining room needs to be *clean* to look inviting. Curtains that are clean and are easy to keep clean are suitable for a dining room. Clean table linens are essential, of course, for a pleasing dining room. Old brass candlesticks with the stains of age may be pleasing in the living room but not on the dining table. For use on

arranging the furniture in a dining room, the principle of *balance* should be observed. In Figure 68, the serving table and wheel tray at one end of the room balance the buffet at the other end. The one larger piece attracts about as much attention as the two smaller pieces of furniture.

A dining room has one purpose: it is a place to eat. Because of this, only those things which make eating comfortable and pleasant should be placed in the room. The dining room should not have a crowded appearance. Candles, vases, and beautiful dishes placed on the buffet may add to the attractiveness of the room, but they should be few in number. Study the arrangement of articles on top of the buffet in Figures 70 and 71.

What are the advantages of a breakfast nook and combination living-dining room? The break-

fast nook is a step-saver; this probably accounts for its popularity. Where economy must be practiced, it is possible to dispense with a dining room when there is a breakfast nook. The greatest objection to this plan is that breakfast nooks are not large enough to entertain guests for a meal. The *living-dining room* (Figure 72) overcomes this objection. Such a

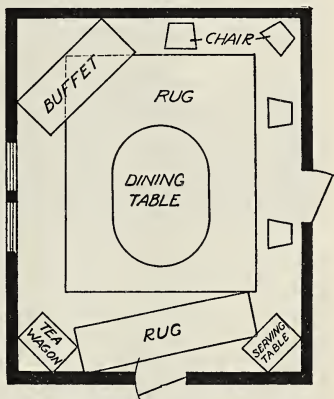


FIGURE 69. A POOR ARRANGEMENT OF FURNITURE IN A DINING ROOM

Furniture placed diagonally across the corner of a room does not look well because the diagonal line contradicts the vertical and horizontal lines of the corners of the room. A rug diagonally placed is displeasing for the same reason. The chairs grouped in one corner of the room are neither symmetrically nor conveniently placed.



FIGURE 70. A GOOD ARRANGEMENT OF ARTICLES ON A BUFFET

Notice that the bowl of flowers is exactly in the middle of the buffet and makes a center of interest. The candlesticks are alike; the plates are the same in size and material, differing only in design. The pair of candles and plates are placed in similar positions, because one attracts the same amount of attention as the other.

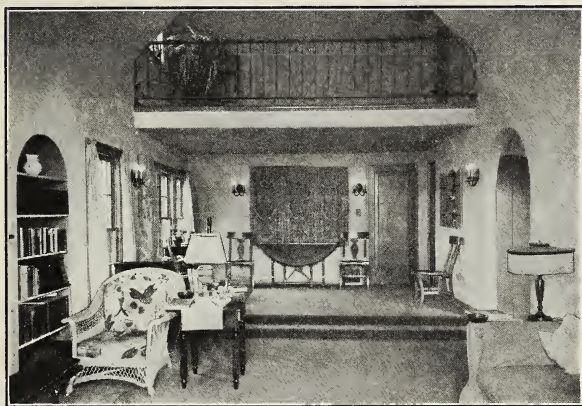


FIGURE 71. A POOR ARRANGEMENT OF ARTICLES ON A BUFFET

These two groups of objects are placed at the same distance from the center, but the objects differ in material and shape. Two unrelated centers of interest are shown, each detracting from the beauty of the other. Hence this arrangement is poor.

A strip of tapestry or printed linen hung behind the buffet, somewhat as shown in Figure 70, would tie the two groups of objects together, and make a pleasing arrangement.

room is used as a combination living room and dining room. One end of the room is arranged for the serving of meals. An L-shaped room makes a good living-dining room. A table that would look well in a living room and also serve as a dining table is desirable in such a room (Figures 73 and 74). A secretary is a suitable piece of furniture in the living-dining



Better Homes and Garden

FIGURE 72. A LIVING-DINING ROOM

One end of this room is planned for a dining room and the other for a living room. The steps to the dining-room end separate the two parts of the room in an interesting way. A partition between the rooms would make each room appear small and much less attractive. Where space must be economized, one large room used as both living and dining rooms is much more pleasing than two small rooms.

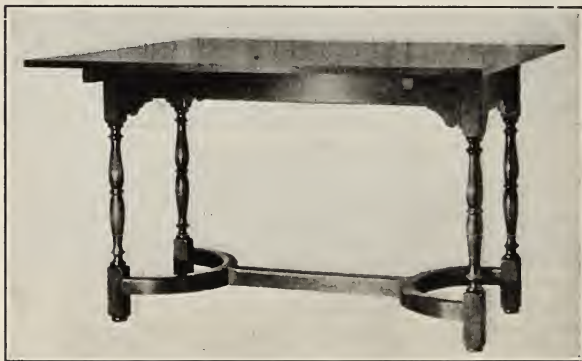
room. The drawers of the secretary may be used for storing table linens. On the book shelves, dishes may be placed. If the doors are glass, the dishes may be screened with curtains fastened inside the doors.



L. and J. G. Stickley

FIGURE 73. A LIVING-DINING ROOM TABLE

This table is an *authentic reproduction* of an *Early American* table. Because of its pleasing lines it will always be in good taste. It is suitable in size for a living room. Note that the top has two leaves folded, one under the other.



L. and J. G. Stickley

FIGURE 74. ANOTHER VIEW OF THE LIVING-DINING ROOM TABLE

This shows the table with its top unfolded, making it twice as large as when folded. Arranged in this way the table can be used as a dining table.

What type of design and shape is suitable for dishes? The design, color, and perhaps shape of a dish first attract us. Since most plates and many other dishes are round, a design that conforms in shape to the edge of a plate is pleasing. (See Figures 75 and 76.)



FIGURE 75. A, A PLATE OF POOR DESIGN; B, A PLATE OF GOOD DESIGN

The design on plate A is *naturalistic*, *i.e.*, an attempt has been made to have the holly look real. High lights and shadows give the design *depth*. The design of a dish which is to hold food should be *flat*.

The design of plate B is *conventional*, *i.e.*, the design is adapted to use on a plate. It is flat and conforms to the shape of the plate; it is restful and pleasing.

A dish that is used constantly should be easy to wash. This means that dishes shaped so there are crevices and creases in which food and dust may lodge are not practicable.

What are **matt and bright gold**? **overglaze and underglaze**? *Gold bands* are commonly used for decorating dishes. There are two kinds of gold used for this purpose—*matt* and *bright*. After matt gold is applied and fired, it is dull in appearance. It must be burnished to make it bright. The bright gold needs no burnishing to give it luster. Matt gold is more dur-

able than bright gold. By comparing the two kinds of bands on dishes, one can learn easily to distinguish them.

The hard lustrous surface of dishes is due to a coating of glassy material called *glaze*. Decorations are usually placed on dishes *over* the glaze and are known as *overglaze*. There are decorations, however, which are placed under the glaze. Such decorations are known as *underglaze*. These do not wear off; overglaze decorations may wear away.



Kinney and Levan

FIGURE 76. A PLATE OF GOOD DESIGN

The conventional design of this plate is pleasing. An adaptation of one of the motives of the border for the center of the plate adds interest.

What is the difference between china, porcelain and earthenware? A flower crock containing moist earth feels damp on the outside. This is because the crock is made of *earthenware*, which is *porous*. Some dishes are made of earthenware, but they are usually coated with *glaze* so they are not as porous as a flower pot. Other dishes are made of *semi-porcelain*, *porcelain*, and *china*. The two latter are *not porous*. All dishes are made of clay and other materials but they are fired to different degrees of hardness; different clays and other materials may be used in making them. Porcelain and china are baked at higher temperatures than semi-porcelain and earthenware.

In selecting dishes, one wants to know what kind will not chip, scratch, and break easily, and will not absorb moisture. China and porcelain dishes do not chip and break as readily as those made of semi-porcelain and earthenware; they do not absorb

moisture. Dishes of uneven thickness break easier than those of uniform thickness. Soft glazes scratch easily. Usually the glaze on porcelain and china dishes is smoother than that on earthenware and semi-porcelain. When a china or porcelain dish of ordinary thickness is held in front of a light, it is translucent; an earthenware dish is opaque. China and porcelain differ mainly in firing.

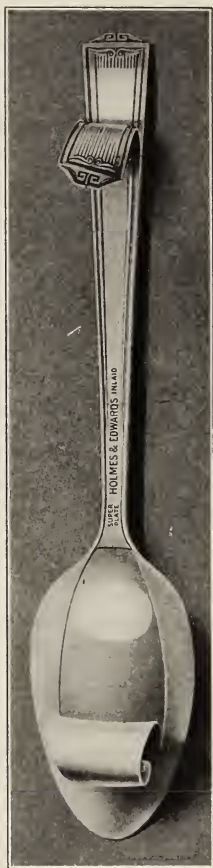
What kinds of dishes are there? Dishes are made in many countries. They are known by different names. In this country, *Syracuse* and *Lenox* china are well known. *Spode*, *Crown Derby*, *Wedgwood*, *Royal Doulton*, *Minton*, and *Worcester* are bone chinas made in England. Bone china is a clear white ware containing bone ash. *Haviland* and *Limoges* china are made in France; *Dresden* china, in Meissen, Germany; *Belleek* china, in Ireland. Dishes are produced in *China* and *Japan*. Fine decorated earthenwares are made in England by *Susie Cooper*; in Sweden, by *Rorstrand*. Coarse earthenware known as *pottery* is made in many countries. In this country much semi-porcelain and solid-color pottery, such as *Franciscan* and *Fiesta*, are manufactured.

Some dishes are *open-stock*. That is, any number of each kind of dish may be bought as long as it is manufactured.

What should be considered in buying glassware? Have you ever noticed a salesman of glassware tap on the edge of a glass piece with his pencil? The sound produced by tapping indicates (1) whether the piece is sound, *i.e.*, free from cracks, and (2) whether it is *lime glass* or *lead glass*. Lime glass is inferior to lead glass. It is not so clear. It is also less durable. When the edge of a piece of lead glass is tapped, a ringing sound is produced.

Glass is shaped by molding and by blowing. Blown glassware is usually more beautiful than pieced glass. It is also more expensive.

Glassware is very attractive on the table. Water held in a



International Silver Co.

FIGURE 77. INLAID SILVER

Notice the rectangular spot on the

glass looks more pleasing than in a china cup. Glass dishes are especially suitable for serving jelly and gelatin foods. Unless glass is especially made to stand heat, hot liquids should not be poured into it.

What should be considered in buying silverware? There are some housekeepers who prefer dishes of china or glass rather than silver because silver requires more care to keep it clean. Silver is pleasing in color and luster; it looks attractive on the dining table.

All sorts of dishes are made of china and glass. It is easily possible to set a table without a silver dish. The knives, forks, and spoons used on the dining table, however, are invariably silver. These silver articles are known as *flat ware* or *flat silver*.

Silverware is of two kinds — *solid* or *sterling silver* and

back of the handle and the oval spot on the under side of the bowl of this spoon. These are blocks of sterling silver, fused into the base metal at the points of hardest wear. The article is silver-plated over both the base metal and the inlaid parts.

plated silver. Although sterling silver is commonly called *solid silver*, it is not pure silver. Pure silver is too soft for use. Copper is mixed with it. Only 7.5% copper, however, is used in making sterling silver.

Plated silver is made by coating steel or some other metal with silver. The quality of plated silver depends upon the thickness of the silver coating and upon the kind of metal used underneath the silver. Some of the best silverware is made by plating copper with silver. Plated silver does not tarnish quite so readily as sterling silver, but, being pure silver, it is scratched more easily than sterling silver. Plated silver, of course, is much cheaper than sterling silver. Plated silver especially constructed for durability is shown in Figure 77.

Some kinds of silverware are more pleasing from the standpoint of art than others and some kinds can be cleaned more easily than others. In selecting silver, not only the beauty of the design, but the ease with which it may be cleaned should be considered.

How may silver be cleaned? One way to clean silver is to scour it so that the dark coating is removed. There are many different silver-cleaning powders and pastes. These invariably contain a fine white powdered substance known as *whiting*. The objection to scouring silver is that some of the silver is lost when the dark coating is removed. Of course in one cleaning only a very small quantity of silver is removed. But if the process is repeated year after year, considerable silver is lost. Then too, scouring silver scratches it somewhat. (See Figure 78.)

There is another way of cleaning silver without scouring it. For this, use an old aluminum pan. If the pan is tarnished it should be scoured. Put water, common salt, and baking soda in the pan. For *each quart of water, use 1 teaspoon each of salt and baking soda*. Place the silver in the pan. There should be enough water to cover the silver. Then place the pan over a flame and heat it. Heat until the tarnish disappears from the silver. Then pour off the water and wash the silver in hot, soapy

water. Rinse and dry it. Instead of an aluminum pan, a granite pan may be used. A piece of aluminum or an aluminum spoon or other article must be put in the pan.



A

B

FIGURE 78. A, NEW SPOON ; B, SPOON SCRATCHED BY USE AND SCOURING

Notice the fine vertical scratches on Spoon B. Scouring not only scratches a spoon, but wears away the silver.

This method of cleaning silver is better than scouring, because no silver is lost in the process. There is, however, a slight amount of aluminum lost. For this reason, it is well to use an old aluminum pan or article.

How are copper and brass cleaned? The same method may be used for copper as for brass. Dip a cloth into vinegar, then into whiting. Scour the metal. There are many prepared metal polishes which can be used successfully on these metals.

In scouring metals always protect the table with a piece of paper. It is not efficient to stain the table with the cleaning process and then have to clean the table.

Why is linen desirable for the table? Linen costs more than cotton. There are many things about the house for which cotton is desirable. Tablecloths, however, are more satisfactory when made of linen. There are several reasons for this:

1. Linen is a much more beautiful textile than cotton.
2. It launders well, keeps a good color, and is easier to iron than cotton because the heat of the iron dries it readily.
3. It leaves no lint on clothes. This quality makes linen especially desirable for table napkins.

The kind of linen commonly used for tablecloths is called *damask*. Damask linen is usually figured; it suggests satin. Damask linen is of different weight. A heavy linen is desirable because it lies flat on the table. In some damask linens, the threads are very close together. Such linen is called *double damask*. Other damasks are more loosely woven. These are known as *single damasks*. The closely woven is the better. Heavy, closely-woven damask costs, of course, more than light, loosely-woven damask. It pays to buy good linen.

There is another kind of linen sometimes used for lunch cloths, runners, and doilies. This linen has a plain weave. It is called *art linen*. The thread used in making some art linen is loosely spun. In other kinds of art linen, the threads are tightly twisted. Both types of linen are used for the table.

Because linen is more expensive than cotton, cotton is sometimes woven with it to make a cheaper fabric. Cloth made of both linen and cotton is known as *union*.

What should be considered in buying table linen? In buying table linen there are several things to consider:

1. Whether the cloth is *pure linen*. It is often difficult for the inexperienced to distinguish between cotton and linen or between union and linen. The only tests that are reliable are microscopic tests and chemical tests. These, of course, cannot be made in the store or in most homes. About the only thing an inexperienced person can do is to rely upon the clerk's statement. A salesman in a reputable store should be able to give accurate information.

If you cannot afford a linen cloth, buy union or cotton. But be sure that you know what the textile is you are buying. Do not buy cotton and pay for linen.

2. Whether the linen is of *good quality*. As has been stated, good linen is *heavy* and *smooth*. Sometimes, linen that appears to be smooth and heavy in the store is found to be light in weight after laundering. Such linen has been treated with starch or a similar material. This fills up the spaces between threads and makes the linen seem heavy. When the linen is washed, the starch or dressing is removed. Whether or not table linen has much dressing in it can be determined before laundering by rubbing a corner of the linen between the fingers. Rubbing usually loosens the dressing. Holding the linen up to the light will sometimes show whether there are bits of dressing between the threads.

3. Whether the cloth is of *proper width*. Table linens vary in width. A good way to tell how wide you want linen is to measure your table. A tablecloth should hang over each edge from 6 to 9 inches. For a round table, a square cloth needs to be only from 4 to 6 inches wider than the diameter of the table since the corners hang over more.

4. Whether the cloth is of *proper length*. The length of the cloth depends upon the length of the table. The cloth should hang over the ends about the same distance as over the sides.

If the table is large enough to seat only four persons, a cloth 2 yards in length is proper size. If the table is extended so as to seat six persons, $2\frac{1}{2}$ yards are needed. For eight persons, 3 yards should be bought. For ten to twelve persons, $3\frac{1}{2}$ yards are needed.

How large are table napkins? How are they sold? In some homes, it is customary to use larger napkins for dinner than for luncheon or breakfast. Dinner napkins measure from 20 to 27 inches. For luncheon and breakfast, napkins are usually 12 to 18 inches square. In many homes for family use, napkins of the same size are used for all meals.

Damask napkins usually have a border on all four sides. Damask linen for napkins is woven generally the width of the napkin. There is thus a selvage on two sides. The other two sides are hemmed. Such napkins are purchased by the dozen rather than by the yard.

Irish linen for napkins must be purchased by the yard and is usually hemmed on all edges. Ways of folding napkins are shown in Figures 101 and 129.

How are stains removed from table linen? Will a stain come out when the linen is washed? If so, the stain will require no attention before washing. Such stains as those made by *sirup* will dissolve in water. Hence washing will remove these. *Egg*, *cocoa*, and *chocolate* stains will usually disappear when the stained article is rubbed with soap. *Grease* and *cream* stains are also removed by rubbing with soap.

But there are some stains that cannot be dissolved by water or removed by rubbing with water and soap. Rust, fruit, and candle wax stains belong to this class. These stains often appear on table linen. Directions for removing stains are given in the U. S. Department of Agriculture Farmer's Bulletin No. 1474.

Methods of laundering table linen are given in the U. S. Department of Agriculture Bulletin No. 1099.

SUMMARY

Dishes — baked clay products :

1. Earthenware — porous, absorbs moisture (unless covered with hard glaze), opaque when held to light
2. Semi-porcelain — somewhat porous (unless covered with hard glaze)
3. Porcelain, and 4. China — very similar, baked to high temperatures, translucent when held to light, durable

Glassware :

1. Kinds :
 - a. Lead — very clear, durable, rings when tapped
 - b. Lime — less clear, less durable, does not ring when tapped
2. Shaped by :
 - a. Molding
 - b. Blowing

Flat silver :

1. Sterling or "solid"
2. Plated

Cleaning tarnished silver :

1. Scouring with fine powder
2. Heating with aluminum in solution of soda and salt

Linen tablecloths :

1. Damask
2. Art linen

REVIEW QUESTIONS AND EXERCISES

Some of the following statements are true and some are false. Read each statement very carefully and decide whether it is true or false. On a piece of paper or in your notebook, list the number corresponding to the statements. After each number write the word True or the word False.

1. China and porcelain dishes chip more readily than earthenware.
2. Light green wall paper is desirable in a room having all windows facing north.
3. A rectangular rug is pleasing in a rectangular dining room.
4. Lead glass is of better quality than lime glass.
5. Matt gold bands are somewhat dull in appearance.
6. Earthenware dishes are non-porous.
7. Earthenware dishes are opaque when held in front of a light.

8. Lenox china is made in England.
9. Sterling silver is not pure silver; it contains 7.5% copper.
10. By applying fine powder to tarnished silver, no silver is lost in cleaning.
11. All tablecloths are pure linen.
12. Table linen is always 2 yards wide.
13. A tablecloth $2\frac{1}{2}$ yards long is large enough for a table seating ten persons.
14. Damask linen napkins are usually sold by the yard.
15. Table linen may seem heavy in weight because it has a starch dressing in it.
16. A hot iron dries linen more readily than cotton of the same weight.
17. The glossy coating on china dishes is called glaze.
18. Linen napkins usually leave lint on clothes.
19. A conventional design is suitable for a dish.
20. Earthenware dishes are usually more durable than porcelain ones.

HOME WORK

1. Clean the silver in your home. Take a written report to your teacher, listing the number and kinds of pieces cleaned and giving the method of cleaning. Put the date on the report. Then sign your name.
2. Make a floor plan of a dining room which actually exists, showing the arrangement of the furniture. If you think the arrangement is correct, state why you think it is. If the arrangement is incorrect, tell why you think it is incorrect.
3. Make a plan of the top of a buffet which actually exists, showing the arrangement of the articles on it. If you think the articles are suitable for a buffet, state your reasons. If they are unsuitable, give your reasons. If you think the articles are well arranged, give your reasons. If you think they are poorly arranged, give your reasons.

UNIT 3: LUNCHEON OR SUPPER

CHAPTER XVIII

CHOOSING A LUNCH AT SCHOOL — THE BOX LUNCH

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Does a person's food have any effect on the way he acts?
2. What is meant by a meat substitute?
3. Why is it objectionable to eat candy between meals?
4. If candy is eaten, when is the best time to eat it?
5. What do fruits contain that makes them one of the most valuable foods to include in your lunch?
6. What are some reasons why fruit is an especially good food to carry in a box lunch?
7. Why do box luncheons sometimes become monotonous? How can they be made interesting?
8. What are some ways of carrying milk in a lunch box?
9. What hot foods are suitable to carry in a lunch box? How can they be kept hot?
10. How old should bread be for sandwich-making? Why?

Does food make a difference? It seems hard to believe that the two white rats in Figure 79 are twin brothers. The difference in their size, appearance, and disposition all came about because one white rat had the right kind of food and the other did not. *Food made the difference.*

The foods that the distressed-looking white rat ate, with the exception of coffee, are nourishing foods. But they *do not contain all the nourishing materials* which the white rat needed. Vitamins, mineral matter, and other foodstuffs contained in milk, eggs, butter, vegetables, and Graham bread were needed to make the white rat grow and be healthy.

There are many persons who live largely on a diet of meat, potatoes, bread, and coffee. They do not feel well much of the time; they are often lacking in energy. The condition of the two white rats explains the probable cause of ill health among many human beings. *If we want good health, we must eat the right kind of food.*

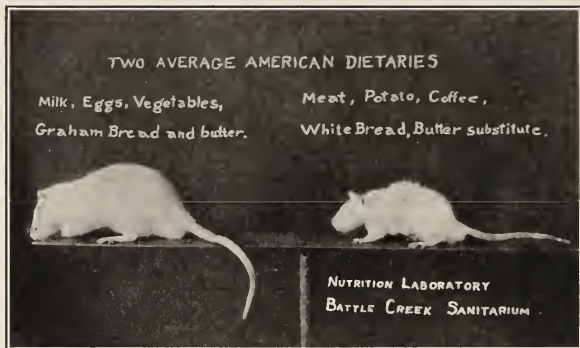


FIGURE 79. TWO WHITE RATS SHOWING THE EFFECT OF DIFFERENT FOODS

This illustration shows the value of milk, eggs, vegetables, whole grains, and butter. These foods are all rich in vitamins and mineral matter. Whole grains contain more minerals and vitamins than fine white flour. Butter contains more vitamins than butter substitutes. Some of the latter contain none at all. Of course, all the other foodstuffs in these foods are needed for health.

Do you select the right food at your school cafeteria? If you eat your lunch at school and your school has a cafeteria or lunch room, you have the opportunity of selecting the kind of food that *will help make you feel right and act right*. It is possible for you to choose foods that will help make you well and strong. In your school lunch room you will doubtless find *soup containing milk or vegetables* or both. You have just learned how well one white rat grew when his diet contained milk and vegetables. On page 65 you learned something about the great value of milk

as a food. Vegetables also are invaluable foods. We need to eat vegetables every day. It appears then that a *vegetable soup* or a soup containing milk (often called a *cream soup*) would be a good food to select at the school luncheon.

In addition to soups, you will find *vegetables* at your school lunch counter. Potatoes are perhaps the most commonly used vegetable. Potatoes are good for us, but we also need other kinds of vegetables, such as carrots, cabbage, spinach, string beans, and peas. *We should make it a rule to eat vegetables other than potatoes every day.*

Raw vegetables, as well as cooked vegetables, are wholesome foods. On the school lunch table you will find salads. Uncooked vegetable in the form of lettuce usually forms a part of a *salad*. (You were told previously that lettuce was a valuable food; see page 136.) Raw cabbage and carrots also are used in some salads. Fruits, about whose value as a food you have learned, are used in salads. *Salads*, then, are good foods to select for luncheon.

Of course *bread* and *sandwiches* may be bought at your school lunch counter. Whole-wheat bread contains more mineral matter than white bread. It is mainly for this reason that whole-wheat bread is to be preferred to white bread.

Whether you should choose *meat* for your luncheon depends upon what you have for the evening meal. If the evening meal is the largest meal of the day, you probably will have meat for that meal. For most persons it is well not to eat meat more than once a day.

Cottage cheese, macaroni and cheese, or some other cheese dish or an egg dish may be considered as a *substitute for meat*. If you eat your largest meal at noon but do not care to eat meat, a meat-substitute makes a good choice.

Most persons like something sweet at the close of luncheon or dinner. We call such a food a *dessert*. Fruits contain sugar and make wholesome desserts. An apple, an orange, or a dish

of cooked fruit is usually on the school lunch counter. These foods are excellent desserts. Custards, rice, tapioca, and fruit puddings also are wholesome desserts.

If you must have candy, eat it at the close of a meal — as the dessert of your meal. *Candy eaten between meals is very irritating to the organs of digestion.*

Milk and cocoa, the *beverages* recommended to you for breakfast (see page 67), may be used for luncheon.

To sum up our discussion regarding luncheons, *soups, vegetables, meat substitutes, whole-wheat breads, fruit, and milk* or

cocoa make an excellent school lunch. You should remember to select for your luncheon at least one *hot dish*.

How can you have a luncheon contest? When you play a game of basket ball, it is fun to win the game. The average person who plays a game likes to

FOOD RECORD		
NAME _____		
MILK	FRUITS	VEGETABLES

FIGURE 80. A CHECKING SLIP

win. How would you like to play a health game and gain points in playing this game?

By experimenting with animals and in other ways, wise persons have found that *milk, fruits, and vegetables* should be used in one's diet every day. Of course, there are other foods that we should eat, such as meat, cereals, and bread. But many persons eat enough of these foods. The foods that are more likely to be neglected are these three foods just mentioned. Since milk, fruits, and vegetables are necessary to our best work and good spirits, the health game consists of eating these foods every day for luncheon. Each serving of milk, vegetable, or fruit counts one point. The pupils having the most points at the end of a month or a semester win the game.

In almost all games some one wins and many lose. In the health game everybody getting any points at all gets some credit. The points are counted in this way: One of the pupils whom the teacher appoints stands just beyond the cash register or the table in the school lunch room where you pay for your food. If you have milk, a vegetable, or fruit on your tray, you show your tray to the pupil whom the teacher appointed. This pupil has slips of paper as shown in Figure 80. She also has a punch. She will give you a slip punched to indicate the food you have on your tray. Place your name on this slip and keep it. The following day or the first day following on which you have a home-economics lesson, give the slip to your teacher.

Your home-economics teacher will have posted in the classroom a record card on which your name is placed. (See Figure 81.) If your slip is punched three times, *i.e.*, if you had on your tray milk, fruit, and vegetable, your teacher will place a *gold star* after your name. The gold star counts *three points*. If your slip is punched twice, a *blue star* will be placed after your name. The blue star counts *two points*. If your slip is punched but once, a *red star* will be placed after your name. The red counts *one point*. Doubtless, it will be easy to select foods which will give you three points.

The checking in the lunch room may be done each school day

Class.....

**MILK, VEGETABLE, FRUIT
CHART**

*Red star, 1 point; blue star, 2 points;
gold star, 3 points*

1	
2	
3	
4	

FIGURE 81. A CARD FOR RECORDING CREDITS FOR MILK, FRUITS, AND VEGETABLES

This card should be long enough to take the names of all the members of a class or section.

or it may be done once a week. The points may be counted at the end of a week, a month, or a semester.¹

What may you gain by a luncheon contest? At the close of each month, perhaps, and always at the close of a term, your teacher gives you a mark or grade. The grade is supposed to be a measure of your knowledge of a subject. Although most pupils are very much interested in grades, a grade is not nearly so important as the real knowledge gained from a subject.

The study of what you should eat may lead to most valuable results. Just as white rats are benefited by the right food, so you will be benefited by the use of proper food. Just as white rats are harmed by improper food, so you will be harmed by the use of food which is lacking in materials to make your body grow and become strong.

The gaining of points in the luncheon contest, then, is far less important than the benefit you receive from eating wholesome foods. If, at the same time you gain a high score in this contest, you realize the importance of using milk, fruits, and vegetables every day in your diet, and form the habit of using these foods daily, you will have gained something far more worth while from the contest than credits. A healthy body is one of the greatest assets for success and happiness that any person can

¹ *Note to the Teacher:* Checking the trays each day of the school week may be inconvenient. It has been found practical to have the checking done once a week for an entire semester. The day on which the checking is done should be varied each week. Also, the day on which the checking is to take place should not be announced to the pupils.

The points may count on grades. If credit for the points is given at the close of a semester, the following plan for giving credit has proved practical: Determine the total number of points received in the luncheon contest by each pupil. Divide this number by 6. Then add the resulting number to the term grade which the pupil would have received had no account been taken of the luncheon contest. Thus if a pupil at the close of a semester received 24 points in the luncheon contest, divide 24 by 6. If her grade for the term regardless of the luncheon contest were 85, four credits would be added to this grade, making the final term grade 89.

have. Do not stop drinking milk and eating fruits and vegetables after the luncheon contest closes. Get the real benefit from the contest by making the use of milk, fruits, and vegetables a habit.

If you carry your luncheon, can you bring milk, fruits, and vegetables? To these pupils in schools where lunch is not served and to those who carry their lunch even though there is a school lunch room, this part of the text applies. It is possible for the pupil who carries her lunch to have milk, fruit, and vegetables in her lunch basket? Let us see:

1. *Milk* may be purchased in or poured into half-pint bottles. If a paper cap or other stopper is placed in the bottle, and the bottle is packed so that it stands upright, milk can be carried to school. Of course, a milk bottle covered with a paper cap needs to be carried carefully. See that the lunch basket or box is carried so that the milk bottle remains upright. Milk can also be carried in a *vacuum* bottle. A vacuum bottle is especially desirable for carrying milk in warm weather, since milk which is cold when poured into the bottle will remain cold. By using a paper "straw," milk may be conveniently sipped from a bottle without the inconvenience of pouring it into a glass.

In case the pupil carries lunch to a school where there is a lunch room, milk may be purchased in the lunch room even if other foods are brought from home. When a warm food is desirable, cocoa or cream soup may be bought in the lunch room either in place of the milk or in addition to the milk.

2. *Fruits* are among the foods best adapted to the lunch box. Often the foods carried in a lunch box are dry; juicy fruits, such as oranges, apples, grapes, and many others, supply moisture. Cooked fruits, such as apple sauce and dried apricots or prunes, may be used in the lunch box if the fruit is placed in a jelly glass or other container with a tightly fitting cover.

Some fruits are suitable for use as sandwich fillings. Bananas, raisins, dates, and many other fruits make excellent sandwich

fillings. Directions for making these sandwiches are given on this and the next page.

3. Three fresh *vegetables* — tomatoes, lettuce, and celery — are especially well adapted to carry in the lunch box. Canned tomatoes *which have been cooked* and seasoned after removal from the can, as well as string beans or peas, also cooked and seasoned, are among the most tasty canned vegetables when

served cold. These vegetables may be carried in covered jelly glasses or other glass containers.

If you carry your luncheon, can you join the luncheon contest? There is no reason why milk, fruits, and vegetables brought from home should not have quite as much credit as when purchased in the school lunch room. Your lunch box or basket containing these foods may be carried to the checker and credit received.



FIGURE 82. BREAD BOARD AND KNIFE

A bread board is a necessary piece of kitchen equipment. Its use prevents marring the kitchen table with the bread knife. A bread board may be used in chopping vegetables.

How should sandwiches be made for the school lunch? You like to have the bread of sandwiches cut in *even slices*. It is difficult to slice *fresh bread*, *i.e.*, bread which has been out of the oven less than 24 hours. The bread for sandwiches, then, should have been baked at least 24 hours previously. Although such bread is termed *stale bread*, it is not hard or dry bread. Whether bread is to be made into sandwiches or served plain, stale rather than fresh bread should be used, since the latter digests less readily.

To *slice bread*, place it on a bread board (see Figure 82) and with a sharp knife cut it into even slices. Cut the slices about $\frac{1}{4}$ inch in thickness. As the bread is sliced, it is well to arrange the slices in pairs so that one slice of a sandwich will exactly fit the other slice.

Usually bread for sandwiches is spread with butter. To prevent breaking the bread, first *cream the butter*, i.e., work the butter with a knife or fork or preferably with a spatula until the butter is pliable. Then the butter can be spread easily over the slice of bread. A spatula is desirable for spreading the bread.

The filling put in sandwiches may be a chopped mixture or it may be in slices. If a filling such as ham or other meat is in slices, it is well to tear the slices in several pieces so as to make the sandwiches easier to eat. Lettuce leaves used in sandwiches should be torn in pieces before placing on the bread.

For a school lunch, sandwiches are not usually cut into fancy shapes. However, if the bread slices are large, it is often desirable to cut the sandwiches in two.

In order to prevent the bread of sandwiches from drying, it is well to wrap them either singly or in pairs in paraffin paper. Often the wrapping from bread loaves or other foods can be saved for this purpose.

How can the box lunch be made interesting? A box lunch becomes uninteresting when it contains (1) dry foods only, (2) cold foods only, or (3) the same foods every day.

A box lunch needs at least one *juicy food*. One of the reasons why fruits are such desirable lunch-box foods is that they are juicy.

It is fine to have a *hot food*, such as soup or cocoa, in the lunch box. This is possible when one has a vacuum bottle.

There are so many different kinds of sandwiches that it is possible to vary the sandwiches each day. By *changing the sandwiches* daily and the dessert often, you can keep the box lunch from becoming monotonous.

Not only the filling but the kind of bread used in making the sandwiches may be varied. Whole-wheat, raisin, nut, date, and brown bread may be used in sandwich making. Sometimes two kinds of bread, such as a slice of white bread and a slice of whole-wheat bread, are used in making each sandwich. This plan is especially desirable if one is learning to like whole-wheat bread.

SANDWICH FILLINGS

1. *Cold Meat*. — Use ham, corned or plain beef, beef loaf, meat cakes, cooked tongues, or chicken. Slice or chop the meat. Use the meat plain or mix with *salad dressing* or *white sauce*. Salad dressing or white sauce makes the sandwiches more moist. Use enough salad dressing or white sauce to moisten, usually about *equal parts by measure*.

Thick white sauce (see page 246) should be used for sandwich filling. A *half teaspoon of dry mustard* added to *1 cup of white sauce* gives chopped ham a good taste. Use little or no salt in making white sauce for ham sandwiches. (Why?)

Grated horse radish mixed with a small quantity of vinegar or lemon juice gives a good flavor to beef sandwiches. Use only a small quantity of the horse-radish mixture.

2. *Bacon*. — Cook thin slices until brown. (See page 100.) Place the browned bacon between slices of bread.

3. *Cheese*. — Use cottage, cream, or hard cheese. Slice or grate hard cheese. Use cheese plain or mix with chopped nuts, pimientos, or olives.

4. *Eggs*. — Use hard-cooked or scrambled eggs. (See page 96.) Slice or chop the hard-cooked egg and add salad dressing and chopped nuts to it if desired. Use the scrambled egg plain.

A hard-cooked egg chopped or cut into bits and mixed with ingredients as follows is palatable and easy to prepare:

1 hard-cooked egg	Few grains cayenne
$\frac{1}{4}$ teaspoon salt	$\frac{1}{2}$ teaspoon butter, melted
$\frac{1}{8}$ teaspoon mustard	$\frac{1}{4}$ teaspoon vinegar or lemon juice

A stuffed egg (see page 293) eaten with a plain bread-and-butter sandwich makes a fine lunch-box food.

5. *Peanuts*. — Use peanut butter or chopped roasted peanuts. The latter are improved by mixing with salad dressing.

6. *Lettuce*. — Tear the leaves in pieces. Cover each buttered slice of bread with lettuce. Spread salad dressing on one lettuce-covered slice.

7. *Fresh Tomato*. — Slice the tomatoes and place on buttered bread. Spread the tomato with salad dressing or season it with salt, pepper, and a few drops of lemon juice or vinegar. Lettuce leaves placed between the bread and tomato not only make the sandwich more nourishing, but prevent somewhat the moisture of the tomato from soaking into the bread.

8. *Nut and Carrot*.

½ cup nut meats, chopped	½ teaspoon salt
½ cup grated or chopped carrot	1½ tablespoons salad oil
2 teaspoons lemon juice	

Mix these ingredients. Spread between slices of buttered bread.

9. *Banana*. — Slice the fruit. Place on the bread and add a little lemon juice and a few raisins.

10. *Raisins (or Dates) and Nuts*. — Chop and moisten with fruit juice, such as lemon juice, grape or loganberry juice.

11. *Apples, Dates, and Nuts*. — Chop and moisten with salad dressing.

12. *Marmalade, Jelly, or Cooked Dried Fruit*. — Prunes, seeded, chopped and mixed with peanut butter or chopped peanuts are delicious.

What desserts can be used for the school lunch box? From the standpoint of health, *fruits are the best desserts*.

Cake is often used in the lunch basket. Cookies and small cakes are more easily packed than cut pieces of cake.

Sandwiches with sweet fillings make good desserts for the lunch box. Nut, raisin, or date bread is especially desirable for sweet sandwiches.

How shall you pack your school lunch? A paper box can usually be used only once or a very few times. Moreover, foods do not keep so moist in it (unless the box is carefully lined with paraffin paper) as in a tin or metal lunch box. Because a metal box is usually tightly covered, the odor of one food in the box will often permeate other foods. *A metal box should be emptied every day, washed daily, and scalded often. It should stand un-*

covered during the night. Folding boxes can be conveniently carried home.

Not only sandwiches, but cake and some fruits should be wrapped in paraffin paper. There are at least two things to remember when placing food in a lunch box: (1) heavy foods or foods less easily crushed should be placed in the bottom of the box; (2) foods should be arranged in the order of eating, those to be eaten last being placed first in the box. The latter suggestion is sometimes impossible to follow since foods that crush most readily are sometimes eaten last. If foods cannot be arranged in the order of eating, it is well to place them so that not all foods will have to be removed from the box before beginning to eat the luncheon.

A paper napkin (or preferably two — one to spread on the table or desk and the other to protect your clothing) should be placed in the top of the box. If a spoon is required, see that it is placed in the box. A drinking cup — either a collapsible one or one of paper — may be needed.

SUMMARY

Wholesome foods for a school lunch:

Soups

Vegetables

Whole-wheat bread

Meat substitute *or* meat (if not eaten at the evening meal)

Fruits or custards or wholesome puddings

Milk or cocoa

Select at least *one hot dish* for luncheon.

A *box luncheon* may be made interesting by having:

1. At least one moist or juicy food
2. A hot food
3. Foods varied daily

Sandwiches:

1. Use stale bread, and slice it evenly.
2. Cream the butter.
3. Chop or tear into pieces the materials for filling.

Lunch boxes:

1. Paper — are not durable but may be discarded.
2. Metal — are durable, keep foods moist, need frequent scalding, should be uncovered at night.

Arranging foods in lunch box:

1. Place heavy foods or foods less easily crushed in bottom of the box.
2. If possible, arrange food in the order of eating.
3. Place paper napkins in top of box.

REVIEW QUESTIONS AND EXERCISES

If your school has a lunch room, from a list of foods served there plan menus suitable for a school girl or boy. Plan the menus as follows:

1. Menu containing no meat
2. Menu containing a meat substitute but no meat
3. Menu containing meat
4. Menu containing milk as a beverage and foods made with milk

Or, if you carry your lunch to school, plan:

1. A box-lunch menu containing milk, fruit, and vegetables
2. A box-lunch menu to which hot soup obtained from the lunch room will be added
3. A box-lunch menu that may be prepared in the fall months
4. A box-lunch menu that may be prepared in the winter months

Copy the following sentences, writing a word or number in place of each blank.

1. Food makes a difference in the way we — and —.
2. Whole-wheat bread contains more — — than white bread.
3. If you must have candy, eat it as the — of your meal.
4. —, — and — should be used in one's diet every day.
5. When carrying it to school, cold milk can be kept cold on a warm day in a — —.
6. Stale bread is bread which has been out of the oven at least — hours.
7. Before spreading it on bread for sandwiches, — butter.
8. — and — — are more easily packed than cut pieces of cake.
9. Sandwiches with — fillings make good desserts.

10. A metal lunch box should be —— daily and —— often.
 11. A metal box should stand —— during the night.

HOME WORK

1. *For pupils who carry their lunch to school:* Select the foods for your lunch box and pack the box. Keep a record of your lunches as follows. Take the record card to your teacher.

LUNCH-BOX RECORD

I selected the menus given here and packed the lunch box.

DAY	MENU
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

 PUPIL'S NAME

2. *For pupils who select their lunch at the school lunch room:* Plan five lunches which you think would be good for you to eat on Saturdays. Show the menus to your teacher.

CHAPTER XIX

LUNCHEON OR SUPPER SOUPS — BUYING CANNED FOODS

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Why do we serve soup at the beginning rather than at the close of a meal?
2. If a cream soup contains no cream, why is the soup so named?
3. What may cause lumps in gravy and sauce? How can the lumps be prevented?
4. Without tasting it, how can you tell when a food contains acid?
5. What is fresh bread? stale bread? dried bread?
6. What is meant by *net weight*?
7. What are unsifted peas?
8. What are extra fancy peaches?
9. Which is more economical to buy — large or small cans of fruits and vegetables?
10. Give at least two reasons why it is unwise to buy whole canned tomatoes for soup.

Why use cream soups for luncheon? Shall we “drink milk” or “eat milk”? Because milk is such a valuable food, it has been said that we should speak of eating milk rather than of drinking it. Although the idea of eating milk seems absurd, we surely do eat milk when we combine it with solid foods such as vegetables, eggs, and bread.

A *cream soup* is usually not made with cream. It is made with milk thickened with flour. Hence the milk appears to be thick somewhat like cream. Perhaps it is for this reason that cream soups are so called. The thickened milk used in soup making is usually combined with a mashed vegetable. As was mentioned on page 223, the combination of milk and vegetable makes a wholesome food.

Less food is eaten for luncheon than for dinner. Because a luncheon is one of the simpler meals, cream soups, being nutritious, make good luncheon foods. These soups are more suitable to serve for luncheon than for dinner — the meal at which a greater variety of food is served.

When soup is included in a menu, it is usually served for the first course. The hot soup acts as an appetizer.

How can a smooth sauce be made? Why is white sauce used in cream soups? Lumps in gravy or sauce are not appetizing. Unless a gravy purposely has chopped giblets or other food in it, we like the gravy smooth. It is the same way with a sauce. The flour used in thickening sauces should not form lumps. To prevent lumping, there are ways of combining flour with the other ingredients of a sauce. Let us learn how this can be done by experimenting.

Experiment 14: *To show what happens when flour is added to a hot liquid.*

(a) Have some water boiling on the stove. Put 1 teaspoon of flour in a small saucepan. Add 2 tablespoons of *boiling water*. At once stir and heat over a flame until the mixture thickens. Is it smooth?

(b) Remove one of the largest lumps from the pan. With a knife cut the lump in two. What do you find inside?

Experiment 15: *To show what happens when flour is mixed with fat before it is added to a hot liquid.*

(a) In a small saucepan put 1 teaspoon each of flour and fat. Mix well. Add 2 tablespoons of boiling water. At once stir and heat over a flame, until the mixture thickens. Is it smooth?

From Experiment 15 we learn that we can get a smooth mixture if we mix the flour with fat before adding the hot milk. This method is followed in making *white sauce* (described on page 237) and in making vegetable *cream soups*. The latter contain mashed vegetable and milk. To prevent these materials separating, *bind* them together. This can be done by mixing the mashed vegetable with white sauce instead of milk.

THIN WHITE SAUCE

1 tablespoon flour
 $\frac{1}{4}$ teaspoon salt
 Dash pepper, if desired
 $\frac{3}{4}$ to 1 tablespoon butter
 1 cup milk

1. First measure the flour and other dry ingredients so the same utensils can be used without washing for measuring butter. (To economize use the less butter.)

2. In a saucepan, put the dry ingredients and butter. Place the flour, pepper, and salt on the side of the pan nearest the handle; place the butter on the side farthest away from the handle.

Tilt the saucepan over the flame so the butter is melted, but the flour is not browned.

3. Then *remove the pan from the flame* and stir to mix the melted butter and dry ingredients. Add a small quantity of the milk. Stir and heat until the ingredients are blended. Continue adding a small quantity of milk, stirring and heating.

4. When the last portion of milk is added, let the mixture cook only until it *reaches the boiling point*. The sauce is then sufficiently cooked. *Remove it from the flame*. If it is not served immediately, cover to prevent a crust forming.

Thin white sauce is suitable for making cream soups. In making the latter use $\frac{1}{2}$ to 1 cup mashed vegetable (called *vegetable purée*) to 1 cup white sauce.

Recipes for thicker white sauces are given on page 246.



White sauce is not harmed

The flavor of peas is pleasing to most persons. A cream soup containing peas not only is appetizing, but has a pleasing color — grayish green. The recipe for this soup follows :

CREAM OF PEA SOUP

1 can peas (No. 2)	$\frac{1}{8}$ teaspoon pepper
$\frac{1}{2}$ teaspoon sugar	1 teaspoon salt
1 cup water	$1\frac{1}{2}$ to 2 tablespoons butter
2 tablespoons flour	1 pint milk

Turn the can of peas (both vegetable and surrounding liquid) into a saucepan. Add the sugar and water. Cover and cook the mixture (boiling gently) until the peas are very soft. Pour the peas and liquid into a coarse strainer and press the peas through the strainer. The pea pulp should pass through the strainer, only the covering or skin of the peas being left in the strainer.

Put the flour, pepper, salt, and butter in a saucepan and make white sauce as directed on page 237.

Combine this sauce with the strained peas. Place the mixture over the flame and heat until it reaches the boiling point. Serve at once. Yield: 6 servings.

How is cream of tomato soup made? Did you ever pour some milk over peaches and find that the milk soon became curdled? What is there in peaches which would change the milk in this way? What would happen if milk and tomatoes were mixed? Let us see :

Experiment 16: *To show what happens when tomato is added to milk.*

(a) In a test tube put a small quantity of milk. Add an equal amount of tomato. Heat the tube slightly. Examine the contents of the tube. What has happened to the milk?

(b) There is a kind of paper, either pink or blue in color, which is known as *litmus paper*. Litmus paper is prepared by dipping plain paper in a kind of vegetable dyestuff and allowing the paper to dry. If a piece of *blue* litmus paper comes in contact with any *liquid containing acid*, the blue paper will change to pink.

Put a drop of tomato on a piece of blue litmus paper. What happens to the blue paper?

(c) What does the tomato contain that brings about this change in the color of the litmus paper?

(d) Why do tomatoes, peaches, and many other fruits curdle milk?

It is the acid of tomatoes which curdles milk. Can anything be done to the acid of tomatoes to prevent it from curdling the milk? Let us see:

Experiment 17: *To show how baking soda affects tomatoes.*

(a) Put a small quantity of tomatoes in a test tube. Add $\frac{1}{4}$ teaspoon of baking soda. Shake the mixture. Put a drop of this mixture on a piece of blue litmus paper. Does the paper change in color?

(b) What ingredient in the tomato did the baking soda affect?

(c) Add a small quantity of milk to the tomato and soda mixture. Heat slightly. Does the milk curdle?

If we make cream of tomato soup carefully and add baking soda to the tomatoes before combining with milk, the milk will not curdle.

One of the reasons why we like tomatoes is that they have a tart taste. It is possible to destroy the taste of the tomato by adding too much baking soda. Moreover, cooking the tomatoes with much baking soda would probably destroy some of the vitamins contained in them. If soda is added, only a small quantity should be used.

CREAM OF TOMATO SOUP

2 cups canned or stewed tomatoes	$\frac{1}{3}$ cup flour
1 slice onion, if you wish	$\frac{1}{4}$ to $\frac{1}{3}$ cup butter or substitute
1 quart milk	2 teaspoons salt
	$\frac{1}{8}$ teaspoon pepper

Put the tomatoes and onion (if used) in a saucepan. Cover them (to prevent evaporation) and cook at simmering temperature for about 15 minutes. Press the tomatoes through a strainer.

Make a white sauce, using the remaining ingredients with the exception of the salt. Since a large quantity of milk is used in making the sauce it is advisable to heat the milk before combining it with the other ingredients.

The soup should not be cooked *after* the strained tomato is added to the white sauce. It is therefore necessary to have the tomatoes and sauce hot before combining them. Reheat the tomatoes, if necessary, and keep the sauce hot.

Add the hot strained tomatoes slowly to the white sauce, stirring constantly. Add the salt. Serve at once. Yield: 7 servings.

The following directions should be carefully observed :

1. Use fresh milk; heat it before adding to the butter and flour in making white sauce.
2. Omit the salt when making the white sauce. Add the salt when the soup is ready to serve.
3. Add the tomato to the sauce rather than the sauce to the tomato.
4. Have both the tomato and sauce hot before combining. Do not cook after combining.
5. Serve at once after combining the tomatoes and sauce.

What breads shall we serve with soup? It is well to keep in mind the old saying, "Variety is the spice of life," when planning foods that are to be eaten together. One way to have variety in foods is to use dry foods with moist foods. We find that bread or crackers are suitable foods to eat with soup. This is because soup is a moist food while bread is a dry food. There are ways of preparing plain bread or crackers that make them especially attractive to serve with soup. All the ways suggested make bread or crackers crisp. Crispness as well as dryness makes the contrast between bread and soup even more striking. Here are some directions for preparing crackers and bread :

CRISP CRACKERS

If crackers are allowed to stand exposed to the air, they absorb moisture and lose their crispness. They become crisp again when heated.

Place crackers on a pie pan or baking sheet. Bake them *in a hot oven* — 400° F. — for 8 or 10 minutes.

CROUTONS

Croutons are made from stale bread, cut into cubes and toasted. Because the bread is in small pieces, it need not be broken into bits before eating.

Luncheon or Supper Soups—Canned Foods 241

Cut the bread into slices about $\frac{1}{2}$ inch in thickness. Then cut each slice into $\frac{1}{2}$ inch strips, removing as little of the crust as possible. Cut the strips into $\frac{1}{2}$ inch cubes. Place on a pie pan or baking sheet and bake *in a hot oven* until a golden brown (400° F., 8 to 10 minutes). Stir to brown the bread evenly.

Variation. — If desired, the slices of bread may be spread thinly with butter before cutting. Instead of cutting into cubes they may be cut only into strips and browned in the oven. The browned strips of bread are known as *soup sticks*.

How should crackers and breads be eaten with soup? It is not good manners to break up crackers and drop them in soup. Crackers should be eaten somewhat as bread. Break off a bit at a time and eat the small piece without dipping it in the soup.

Breads served with soups are eaten in the same way as crackers. However, a few croutons may be dropped in the soup. This is done *just before it is brought to the table*. The one seated at the table does not place the croutons in the soup. These crisp pieces of bread used in this way really serve as a garnish for the soup.

How shall bread crusts be used? Save bread crusts. Do not waste them. From the crusts, *dried* bread crumbs may be made. These crumbs are more desirable for many dishes than are cracker crumbs.

Dry the crusts or pieces of stale bread by breaking them into pieces, placing them on a shallow pan, and heating them very slowly in an oven of low baking temperature — 250° F. — for about 2 hours. Bread may be dried also in a warming oven. The bread should dry until it is crisp. It should not brown. Crumb the dried bread by passing it through a food chopper or by rolling it on a pastry board.

For croquettes, very fine dried bread crumbs are desirable. If such crumbs are desired, sift the crushed bread, thus separating the coarse and fine crumbs.

Place the crumbs in jars and cover the jars by tying a piece of cloth over them.

For scalloped dishes, *soft bread crumbs* are more desirable than stale bread crumbs. Soft bread crumbs are prepared by breaking *stale* bread into bits.

What size of cans shall we buy? The size of a can is indicated by a number. It is often helpful to know the measure in cups

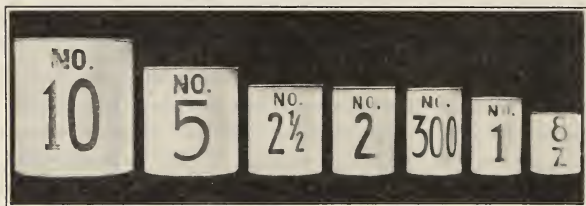


FIGURE 83. DIFFERENT SIZES OF CANS IN COMMON USE

The following are the cans and foods commonly associated: No. 10 cans, fruits and vegetables (cafeteria size); No. 5, tomato and fruit juices; No. $2\frac{1}{2}$, fruits, tomatoes, pumpkin, sauerkraut, beets; No. 2, vegetables and fruits; No. 300, pork and beans, tomato juice, spaghetti; No. 1, fruits, vegetables, canned soups; 8Z, fruits, mushrooms, fish. Formerly tomatoes were packed in No. 3 cans. Now cans of this size are rarely found in retail stores. Pimientos and fish are sometimes packed in cans holding less than 8Z.

and the weight or volume of the contents of cans of different sizes. Just as a cup of sirup does not weigh the same as a cup of milk, so two different foods in the same size can may vary in weight.

SIZE OF CAN	MEASURE	WEIGHT OR VOLUME OF CONTENTS
No. 10	13 cups	. . . . . 6 lbs. to 8 lbs.
No. 5	7 cups	. . . . . 1 qt. 1 pt. 2 fluid oz. to 1 qt. 1 pt. 4 fluid oz.
No. $2\frac{1}{2}$	$3\frac{1}{2}$ cups	. . . . . 1 lb. 10 oz. to 2 lbs. 3 oz.
No. 2	$2\frac{1}{2}$ cups	. . . . . 1 lb. 2 oz. to 1 lb. 8 oz.
No. 300	$1\frac{3}{4}$ cups	. . . . . 13 oz. to 1 lb. 2 oz.
No. 1	$1\frac{1}{4}$ cups	. . . . . $9\frac{1}{2}$ oz. to 13 oz.
8Z	1 cup	. . . . . 8 oz.

Many fruits and other canned goods can be bought in cans of different sizes. It takes two No. 1 cans to hold as much as one No. 2 can; seven 8Z cans to hold as much as two No. 2½ cans; four No. 300 cans to hold as much as one No. 5 can. The following canned foods and prices were obtained at a grocery store:

MEDIUM QUALITY

2	No. 1 cans peas @ 13 cents	26 cents
1	No. 2 can peas @ 15 cents	<u>15 cents</u>
	Difference	11 cents
7	8Z cans pears @ 10 cents	70 cents
2	No. 2½ cans pears @ 25 cents	<u>50 cents</u>
	Difference	20 cents
4	No. 300 cans tomato juice @ 10 cents	40 cents
1	No. 5 can tomato juice @ 23 cents	<u>23 cents</u>
	Difference	17 cents

These figures make us realize that buying canned goods in small cans is not thrifty. If a portion of a large can is allowed to spoil, it may be better to buy the smaller can. However, a thoughtful housekeeper will not allow foods to spoil. If the family is small, the contents of a large can may be used in different ways. Canned tomatoes, for example, may be used for plain stewing, soup, jelly (for salad), and sauce (for meat). It is, of course, not desirable to serve the same food in more than one course of a meal and often not desirable to serve the same food more than once a day. It may be necessary then to use a food on consecutive days. If this is done, care should be taken to keep the food in a cool place. It is often necessary to heat food and then cool it to keep it safely from one day to the next.

How can you compare the costs of canned foods? Some canned food contains more solid and less liquid than others. The former variety of course furnishes more food than the latter. In judging of the value of a can of vegetable or fruit, the following must be determined:

1. Cost of can
2. Weight of the contents of the can
(compare this with weight given on the label)
3. Weight of the solid materials of the can
4. Cost of an ounce of solid material

To do this you must first of all know what the can cost at market. Then open the can and pour out its contents. Weigh in ounces its contents. Then separate the solid material. Weigh this. To find the cost of each ounce of solid material, divide the cost of the can by the weight in ounces of the solids, *i.e.*,

$$\frac{\text{cost of can}}{\text{weight of solids (in ounces)}} = \text{cost of one ounce of solid.}$$

By getting such data from different cans, you can compare the costs of the solids of different canned foods and thus determine which is the cheapest as far as weight is concerned. Of course, these data do not help you to compare the qualities of canned goods.

How can you judge the quality of canned goods? It is important to read the labels on canned foods. All labels must show the weight or volume of the contents of the cans. This includes both solids and *edible* liquids. However, no *inedible* material, such as the brine in which olives are packed, may be counted in the weight of the contents. Some labels known as *descriptive labels* give helpful information such as the number of slices, pieces, or servings, the number of cups per can, and the thickness of the sirup. Actual size illustrations of the contents, such as peas, appear on some labels. Some firms indicate the quality of foods on labels, *i.e.*, they use *grade labels*. The grades are represented by A, B, and C, or 1, 2, and 3. The following terms are also used to indicate quality:

Fancy, *i.e.*, an excellent quality; fruit packed in heavy sirup, *i.e.*, a sirup usually containing 40 to 60 per cent of sugar.

Choice (on fruit labels) or *Extra Standard* (on vegetable labels),

i.e., good quality; fruit packed in medium sirup, *i.e.*, a sirup with about 10 to 15 per cent less sugar than the Fancy brand.

Standard, i.e., a good food, but somewhat irregular in size, color, or ripeness; fruit packed in a light sirup.

Substandard, i.e., food that does not measure up to the minimum standard which is explained in the following:

The Food and Drug Administration has established minimum standards of quality for many foods. If a food falls below the minimum standard established for that product, it must be labeled: "Below U. S. Standard — Good Food — Not High Grade." In case a fruit meets all minimum requirements except that it is packed in water instead of in sirup, it must be labeled "Water-pack." Moreover, if cans are filled so there is much space between the food and top of can; if an excessive amount of liquid has been used in canning the food; if coloring has been added to a food, — these facts must be stated on the label.

According to Food and Drug Laws, all food shipped from one state and sold in another, must be wholesome food; the labels of canned goods must contain no false or misleading statements. But some labels do not give enough information. Therefore, buy goods with graded and informative labels. Note the name of the brand and observe the contents of every can used so that you may be guided in making future purchases.

While Grade A or B canned vegetables or fruits may be desirable when food is served uncombined or used as a garnish, a lower grade may be entirely satisfactory for soup-making or combining with other foods. Moreover, when economy must be practiced, lower grade products are advised.

SUMMARY

Cream soups consist of (1) $\frac{1}{2}$ to 1 part vegetable purée and (2) 1 part thin white sauce.

White sauce may be made smooth by (1) mixing flour with cold liquid or (2) mixing flour with fat, before adding the hot liquid.

PROPORTIONS OF INGREDIENTS FOR WHITE SAUCE

KIND	FLOUR	FAT	SALT	LIQUID	USE
Thin	1 table- spoon	$\frac{3}{4}$ table- spoon	$\frac{1}{2}$ tea- spoon	1 cup	Cream soups, toast
Medium	2 table- spoons	$1\frac{1}{2}$ table- spoons	$\frac{1}{2}$ tea- spoon	1 cup	Creamed vegetables, gravy
Thick	3 table- spoons	2 table- spoons	1 tea- spoon	1 cup	Cooked salad dress- ing
Very Thick	4 table- spoons	3 table- spoons	1 tea- spoon	1 cup	Soufflés, croquettes

Canned goods:

Sizes in common use: No. 10, 5, $2\frac{1}{2}$, 2, 300, 1, 8Z.

Quality: Grades A, B, or C, or Grades 1, 2, or 3, or Fancy, Choice, or Extra Standard, Substandard.

Canned fruits differ in thickness of sirup, size, and uniformity of shape.

Canned vegetables differ in age or tenderness and uniformity of size and shape of vegetable.

Both canned fruits and vegetables differ in proportion of solid and liquid.

REVIEW QUESTIONS AND EXERCISES

Each of the following statements is completed in more than one way. Only one way is correct. Read each statement carefully and choose the correct word or phrase to complete it. Then copy the sentence including only the correct conclusion.

1. Thin white sauce contains for each cup of milk (a) $\frac{1}{2}$ tablespoon of flour (b) 1 tablespoon of flour (c) $1\frac{1}{2}$ tablespoons of flour (d) 2 tablespoons of flour.

2. Smooth white sauce may be made by mixing the flour with (a) hot milk (b) hot water (c) hot butter.

3. Tomatoes will curdle milk because the vegetable contains (a) water (b) solids (c) mineral matter (d) vitamins (e) acids.

4. No. 2 can of peas contains about (a) 2 cups (b) $2\frac{1}{2}$ cups (c) 3 cups.

5. Bread in the best condition for making croutons is (a) fresh (b) stale (c) dry.

6. In making soup sticks, the slices of bread should be buttered (a) before cutting the crusts from the bread (b) after cutting the crusts

from the bread (*c*) after cutting the crusts from the bread and cutting into strips.

7. On the label of a can of fruit is given (*a*) the weight of the solid contents of the can (*b*) the nutritive value of the contents (*c*) the weight of the entire contents of the can.

8. Dried bread crumbs should be stored in a jar (*a*) covered with a glass lid (*b*) covered with a metal lid (*c*) covered with a cloth (*d*) having no cover.

9. In combining white sauce and tomatoes add the (*a*) sauce to the tomato (*b*) tomato to the sauce.

10. Acids in liquid foods turn (*a*) blue litmus pink (*b*) pink litmus blue.

HOME WORK

Cream soups are suitable not only at luncheon, but at supper. Cream soups may form also a part of a plain dinner. You would no doubt please your mother and the rest of the family by preparing a cream soup for the evening meal.

Prepare a cream soup for at least two meals. Report making the soups to your teacher.

In order that you may have a greater variety of cream soup recipes to prepare at your home, the following are given:

CREAM OF SPINACH SOUP

This is a very nutritious and tasty soup. In the following chapter, you will learn how valuable a food spinach is. It is well to know how to make many different dishes using spinach.

$\frac{1}{2}$ pound fresh spinach	$1\frac{1}{2}$ teaspoons salt
1 quart liquid — milk and spinach water	$\frac{1}{8}$ teaspoon pepper
4 tablespoons flour	3 to 4 tablespoons butter or bacon fat

Wash spinach carefully as directed on page 279. Put the clean spinach in a saucepan. Add no water. Place over a flame. Stir with a fork or spoon until the spinach becomes wilted. Then continue to cook, until the leaves are tender, usually 15 to 20 minutes. Drain the moisture from the leaves. Turn the spinach leaves into a chopping bowl (see Figure 84) or on to a bread board and chop fine. *Save the spinach water.* It contains nourishing substances.

Pour the spinach water into a quart measure. Add enough milk to

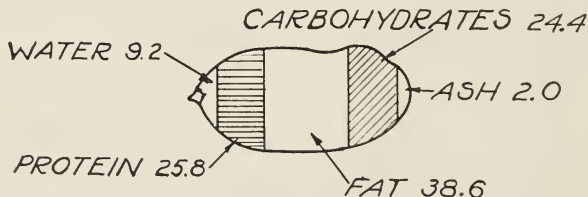
fill the measure. Make a sauce as directed on page 237, using the remaining ingredients and the milk and spinach water. Add the finely chopped spinach. Heat until the soup boils. Serve hot. Yield: 5 servings.



Cleveland Plain Dealer

FIGURE 84. A CHOPPING KNIFE USEFUL FOR CUTTING JUICY VEGETABLES

The large blade shaped to fit the bowl makes this chopping knife more efficient than many of this type. For chopping spinach and other juicy vegetables such a knife is desirable, for less of the juices are pressed out than when the food is ground through a chopper.



Redrawn from U. S. Department of Agriculture Chart

FIGURE 85. COMPOSITION OF THE EDIBLE PORTION OF A PEANUT

Notice the high percentages of *fat* and *protein*. Also notice the percentage of *carbohydrates*. Vitamins: A+, B++, C*.

Peanut-tomato soup is easily made, delicious, and very nourishing. The composition of peanut is shown in Figure 85.

PEANUT-TOMATO SOUP

1 can tomatoes, No. 3	1 cup peanut butter
1 pint boiling water	1½ teaspoons salt
	½ teaspoon paprika

Put the tomatoes and water into a saucepan. Boil the mixture at least 5 minutes; then strain it.

Return the mixture to the saucepan and add the other ingredients. Mix well. Heat the mixture until it boils. Serve hot. Yield: 7 servings.

SOUTHERN BEAN SOUP

1 cup dried beans	½ cup dried celery leaves
6 cups water and a ham bone or	2 slices onion
6 cups water in which ham has	3 tablespoons flour
been cooked	⅓ teaspoon pepper
1 cup fresh celery leaves and	3 tablespoons ham or bacon fat
stems or	Salt, if needed

Wash the beans. Add enough cold water to cover the beans well. Cover with a lid and let stand over night or at least 6 hours.

Then drain off the water. Add the water and ham bone or ham water. Also add the celery and onions. Let the beans cook (boiling gently) until very tender.

Press the beans through a strainer. Add enough water to the strained beans to make 5 cups.

Put the flour, pepper, and fat in a saucepan. Mix and cook as directed for white sauce (page 237) using the strained bean mixture instead of milk. Add salt if necessary. Serve hot.

This soup may be garnished with slices of lemon and of hard-cooked eggs. Yield: 6 servings.

CHAPTER XX

THE MAIN LUNCHEON DISH—MEAT SUBSTITUTES

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Should we make a practice of eating meat for luncheon?
2. What are meat substitutes? Name some.
3. Peas are related to beans. Name some points of similarity.
4. What nourishing substance does macaroni contain that is not found in cheese?
5. What do proteins do in the body?
6. What foods contain proteins of the best quality?
7. What is whey?
8. What may make some cottage cheese taste bitter?
9. How much cottage cheese can be made from a gallon of sour milk?
10. What is the name of the kind of protein occurring in milk in largest quantity?

Shall we eat meat for luncheon? *One serving of meat a day* is believed to be all most persons should eat. Meat is most often eaten for dinner, the heaviest meal of the day. To avoid eating too much meat a hot dish of another sort should be chosen for luncheon. For this hot dish, foods which contain materials similar to those in meat may be used. We shall learn about such foods in the next section.

What shall we eat instead of meat? When we were studying about milk, eggs, and breakfast cereals, we learned that there was a foodstuff in these foods called *protein*. (See pages 58, 72, and 99.) *Meat is one of the foods rich in proteins.* The kind of proteins found in meat is very valuable. That is one of the reasons why meat in moderation is believed to be a good food. Besides being found in milk, eggs, meat, and cereals, proteins

are contained in considerable quantity in peas and beans, especially in dried peas and beans. It is stated on page 266 also, that a small quantity of proteins is contained in vegetables other than peas and beans.

Although both animal and vegetable foods contain proteins, not all the proteins found in foods nourish the body in the same degree. As has been mentioned, some proteins are very much more valuable than others. The qualities of proteins contained in protein-rich foods are as follows:¹

Good quality of proteins — in meat, milk, cheese, eggs, peanuts, and some leaves

Intermediate quality of proteins — in cereal grains

Poor quality of proteins — in peas and beans

This information helps us very much when we want to select foods containing proteins of as good quality as those found in meat. The information helps us also to choose foods to take the place of meat. Of the solid foods, cheese and eggs are good meat substitutes. These foods, however, should not be eaten in generous quantity. There are many dishes containing cheese and egg mixed with cereals and other foods which are suitable for a hot luncheon dish.

Although peas and beans contain proteins of poor quality, these foods should not be neglected. We can use milk, eggs, or some food containing a good quality of protein with peas or beans and thus have a food complete in nourishing properties.

Review the composition of milk. (See Figure 28, page 70, and page 72.) Also review the composition of eggs. (See Figure 32, page 99.)

How are soufflés made? Egg dishes are suitable for luncheon as well as breakfast. You have prepared an omelet. (See page 98.) You have learned to make white sauce. (See page 237.) By making an omelet, using instead of plain milk a white sauce, and baking the mixture in the oven, a dish called a

¹ See page 36 of *Food, Nutrition, and Health* by McCollum and Simmonds.

soufflé (pronounced sōō-flā') may be prepared. Thick white sauce is used in soufflés.

PLAIN SOUFFLE

4 tablespoons flour	3 tablespoons butter
1 teaspoon salt	1 cup milk
$\frac{1}{8}$ teaspoon white pepper	4 eggs

Make thick white sauce of the flour, seasoning, butter, and milk as directed for thin white sauce on page 237. Set aside to cool.

Break and separate the eggs. Beat the yolks until lighter in color, and the whites until stiff. Add the white sauce to the yolks; stir while combining. (Note that in making a soufflé, sauce is added to the beaten yolks; in making an omelet, milk or water and seasoning are added to the beaten yolks.)

Cut and fold the whites into the yolk mixture. Turn into a buttered baking dish. Set the dish in a pan containing a little hot water. Bake in a *moderate oven* (350° F.) for 1 hour. Serve at once. Yield: 6 servings.

Variations. — Cheese or cooked meats may be added to the white sauce. These foods should be chopped or cut into bits before combining with the sauce. Proceed as for making the plain soufflé, merely adding the chopped food to the sauce.

Cheese Soufflé. — Add $\frac{1}{2}$ cup strong cheese, grated or cut into bits.

Meat Soufflé. — Add 1 cup chopped ham, fish, beef, or other meat.

How is cottage cheese made? According to the Mother Goose rime, Miss Muffet ate curds and whey. Perhaps she ate cheese or maybe she ate sour milk. Sour milk, especially that which has stood for several days, appears to consist of solid and liquid particles. The solid part is known as *curd* and the liquid, as *whey*. A kind of cheese known as *cottage cheese* is made from sour milk. In making cottage cheese, we simply heat sour milk so as to make the curd more firm. Then we strain the mixture through cloth to separate the curd from the whey.

Cottage cheese may be purchased at market. There it is sold by the pound or quart. Sometimes cottage cheese has a slightly

bitter taste. This may be due to the fact that the sour milk from which the cheese is made has been allowed to become too old.

Cottage cheese may easily be made in the home. A large quantity of sour milk, however, is needed to make it. From one quart of sour milk, about one cup of cheese may be prepared. The method of making this cheese follows:

COTTAGE CHEESE

It is well to measure the sour milk so you will know how much salt to add to the cheese made from it.

Pour the sour milk into a kettle or in the top part of a double boiler. Place the utensil containing the sour milk in a pan of hot (not boiling) water. Keep the water hot, but do not let it boil. Continue to heat the water until the sour milk becomes warm and the curd separates from the whey.

Then pour the curd and whey into a clean cloth bag. Let the bag hang until no more whey drains from it. Turn the curd or cheese into a bowl. For *each quart of sour milk used*, add $\frac{1}{4}$ teaspoon salt and a dash of pepper. Also add enough cream or top milk or melted butter to make the curd moist enough to look and taste good.

What are the two classes of cheese? Cottage cheese is a *soft cheese*. It is a soft cheese because it contains much water, about 75%. There are other kinds of soft cheeses such as Neufchâtel cheese and Philadelphia cream cheese.

Another group of cheeses is called *hard cheese*. Hard cheeses are more commonly used in this country than the soft cheeses. A kind of hard cheese called *American cheese* or *Cheddar cheese* is generally used. *Swiss cheese* is another popular hard cheese.

Because hard cheese contains less water than soft cheese, it keeps better. Soft cheeses are sold by the package or pound. Hard cheeses are sold by the pound. *Mild*, *medium*, or *strong* American cheese may be purchased. When cheese is to be combined with other food such as macaroni, it is well to buy

cheese of pronounced flavor. Cheese should be used in moderation, and less of strong cheese is required for flavoring than of mild cheese. American cheese is sometimes cream-colored and sometimes of deep yellow color, the intensity of color being due to the amount of coloring material added. *Either whole or skimmed milk is used in making this cheese.* Cheese made from skimmed milk contains less fat than that made from whole milk. When buying American cheese, the grocer should be able to tell you whether the cheese is made from skimmed or whole milk, since the label on a whole cheese indicates the kind of milk used.

Cottage cheese is ready to eat as soon as it is made. After hard cheese and some varieties of soft cheese are made, they must be kept for some time so as to develop a pleasant flavor. Cheeses which are allowed to stand for some time before use are called *ripened* cheeses.

How can ripened cheese be prepared? One can buy at the grocery store a box of rennet tablets. These tablets contain the rennet enzyme, very similar to the rennin, a minute quantity of which is found in the human stomach.¹ Let us experiment with rennet tablets:

Experiment 18: *To show how rennet affects milk.*

(a) Into a test tube put a small quantity of milk. Heat the milk a very little. Care must be taken that the milk does not boil. Take $\frac{1}{4}$ of a rennet tablet. On a small piece of paper crush the tablet, pressing on it with the end of a spatula. Add the crushed tablet to the warm milk. Shake the tube to dissolve the tablet. In what state — solid or liquid — are the contents of the test tube?

(b) Set the tube aside. After a few minutes examine the contents of the tube. In what condition are the contents?

(c) What substance must have brought about the change?

In the making of most kinds of cheese, rennet is added to milk. The rennet acts on the principal protein of milk, clotting it. The principal protein of milk is *casein*.

¹ When milk is mixed with the juices of the stomach, it is clotted by the rennin contained in the digestive juices.

In commercial cheese making, after the milk has been clotted by means of rennet, the clotted substance or curd is cut into pieces and heated slightly. After more cutting, salt is added. The moisture or whey is then pressed from the curd. After the curd is separated from the whey, the cheese is tough and rubbery. It is not like the hard cheese we find at market. What then is done to the tough rubbery cheese to change it to the kind we find at market? The new or *green cheese*, as it is called, is allowed to stand for several weeks or longer. During this time, bacteria act upon the cheese and change it in both texture and flavor. The cheese is said to *ripen* when it is acted upon by bacteria.

We see from this that there are some very *useful kinds of bacteria*. Bacteria aid in butter making, vinegar making, and the making of other foods. Not all bacteria are disease-producing.

What is the composition of cheese? Study Figure 86 to learn the composition of cheese.

A good way to remember the composition of cheese is to think of it as being *approximately one third water, one third fat, and a little less than one third proteins*. (Some cheeses contain more protein than the cheese shown in Figure 86.)

Cheese, especially cottage cheese, is one of the cheapest foods supplying proteins. Eaten in moderation, cheese is a very wholesome food. Not only is it wholesome, but it has a fine flavor. Because of its pleasing and pronounced flavor, a little cheese greatly improves many dishes.

How are some cheese dishes made? *Macaroni with cheese* is one of the most popular cheese dishes. Did you ever think why a mixture of cheese, macaroni, and milk makes a good food? *First* of all it tastes good. Macaroni and milk are mild in flavor. Cheese with its pronounced flavor makes the mild-flavored foods taste good. *Second*, cheese is lacking in starch or carbohydrates and in vitamins. Macaroni supplies the starch and

Make the white sauce. Add the cheese to the sauce. Mix with the cooked macaroni. Pour into a buttered baking dish. Cover with the buttered crumbs. Bake in a *hot oven* — 450° F. — for 20 minutes or until the crumbs are browned. Serve hot. Yield: 6 servings.

Variations. — Since *rice* and *noodles* are both starchy foods, they taste good with cheese. Both rice and noodles may be cooked in boiling water in the same way as macaroni. Combine the cooked rice or noodles with white sauce, cheese, and bread crumbs as directed for the macaroni dish.

Welsh rabbit is a well-known cheese dish. This dish is really a cheese sauce poured over toast or crackers. Here again, cheese is served with a starchy food.

WELSH RABBIT

$\frac{1}{4}$ pound strong cheese, grated or cut into bits	$\frac{3}{4}$ teaspoon salt
$\frac{1}{2}$ cup milk (preferably top milk)	Few grains cayenne
2 eggs	1 tablespoon butter
$\frac{1}{2}$ teaspoon mustard	6 slices toast or crackers

Put the cheese and milk in the top part of a double boiler. Heat without stirring over hot water until the cheese melts.

Beat the eggs. Add the seasoning. Stir the egg mixture into the cheese mixture. Continue stirring and cooking until the mixture becomes slightly thicker. Add the butter. Stir until the butter is melted. At once pour over the toast or crackers. Serve hot. Yield: 6 servings.

Potato volcano is a tasty and novel dish for luncheon or supper. (See Figure 87.) It is made with mashed potatoes and Welsh rabbit.

POTATO VOLCANO

6 potatoes	Milk, preferably top milk — about $\frac{1}{2}$ cup
2 tablespoons butter	1 egg
2 teaspoons salt	Welsh rabbit
$\frac{1}{8}$ teaspoon pepper	Pimiento and parsley for garnishing

Scrub and pare the potatoes. Put 1 pint water in a saucepan. Add $\frac{1}{2}$ teaspoon salt. Heat the water; when it boils, add the potatoes.

Cover and boil gently until the potatoes are tender. Drain the water from them.

Mash the potatoes, add the butter and seasonings and enough milk to moisten. Beat the egg. Add 3 tablespoons of it to the mashed potato. Beat the mixture until it is light.

Pile the potatoes high on a buttered glass pie dish or on an oven-glass platter. With a spoon, make a well about the size of a tumbler in the center of the potato mound.



Better Homes and Gardens

FIGURE 87. POTATO VOLCANO

When you have completed this interesting dish, the Welsh rabbit will suggest the lava of a volcano; the pimiento, fiery rocks; the sprigs of parsley, the shrubs that dare to grow at the base of this turbulent mountain.

Although this is a novel dish, it is very good. Moreover, it is easy to serve, for it is placed on the table in the same dish in which it is baked. The hot glass dish or platter should be placed, of course, on a hot-dish mat, or on another dish, to protect the dining table.

To the remainder of the egg, add 1 teaspoon water. Pour the diluted egg over the potato. Put the pie dish or platter into a *very hot oven* — 500° F. Bake until the points of the potato are browned.

Remove from the oven, pour hot Welsh rabbit into the well or cavity.

Around the "crater of the volcano" put bits of chopped pimiento. Place sprigs of parsley at the base of the "volcano." Serve at once. Yield: 6 servings.

CHEESE CUSTARD

2 eggs	1½ teaspoons salt
1 pint milk	⅛ teaspoon paprika
1½ cups soft bread crumbs	¼ pound American cheese grated or cut into small bits

Break the eggs into a mixing bowl. Beat them. Add the other ingredients. Stir to mix.

Butter 6 custard cups or 1 baking dish. Pour the mixture into the buttered dishes. Place the latter in a pan containing hot water. Bake in a *moderate oven* — 350° F. — until a knife inserted in the custard comes out clean. This usually takes about 1 hour. Dash paprika over the top of the custards. Serve at once in the dishes in which the custard was baked. Yield: 6 servings.

What are legumes? What is their composition? Peas and beans are seeds growing in pods. Lentils also are seeds which grow in pods. This group of vegetable foods — *beans, peas, and lentils* — is known as *legumes*. The seeds, both green and dried, of these leguminous plants as well as the pods of some kinds of beans are used as food. All legumes contain proteins. Dried legumes are rich in proteins.

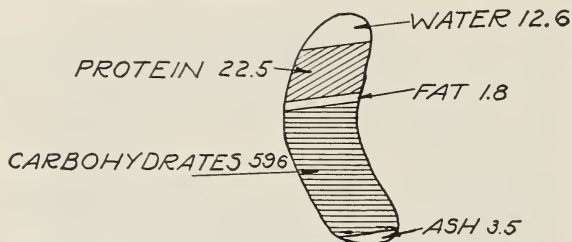
Let us study the composition of navy beans as shown in Figure 88. The dried legumes are among the cheapest protein-rich foods.

How should dried legumes be cooked? We learned that it was advisable to soak dried fruits in water before cooking. Dried legumes also should be soaked in water. Legumes are usually soaked in water over night or for at least six hours. Then the legumes should be cooked in water for a long time. Because of the long time needed to cook them dried legumes should boil gently or cook at simmering temperature. Long rapid boiling breaks up these vegetables.

In the *fireless cooker* dried legumes can be cooked economically. They can be very conveniently cooked in the *heat-regulated oven*.

If these vegetables are cooked in the oven, it is well to cook other foods in the oven at the same time, so as to use fuel as economically as possible.

Recipes sometimes suggest adding baking soda to the water in which legumes are cooked. The baking soda may help somewhat in softening the hard vegetables, but it is perhaps *better not to use the soda*. Although dried legumes are not rich



Redrawn from U. S. Department of Agriculture Chart

FIGURE 88. COMPOSITION OF A DRIED NAVY BEAN

Notice the high percentage of *protein*, but remember that the protein of this and other legumes is of poor quality and should be combined with milk or eggs if used as a meat substitute.

Notice the high percentage of *carbohydrates*.

Vitamins: A+, B++, C*, G*.

in vitamins, they contain vitamin B and some vitamin A. Cooking foods in water containing baking soda is believed to destroy the vitamins.

BAKED BEANS

1 pound ($2\frac{1}{2}$ cups) dried beans	$\frac{3}{4}$ teaspoon mustard
3 tablespoons molasses or brown sugar	$3\frac{1}{2}$ cups boiling water
1 tablespoon salt	3 ounces salt pork or bacon

Pick over the beans and wash them. Add enough cold water to cover the beans well. Cover and let stand over night or at least 6 hours. Then drain away the water in which the beans were soaked.

Add the molasses, salt, mustard, and water to the beans. Place over a flame and heat until the mixture reaches the boiling point.

Since salt pork and bacon are chiefly fat, they cannot be cleaned effectively by washing. Clean them by scraping the surface with a knife. Slice the pork or bacon or cut gashes in it almost to the rind. Add the fat meat to the hot beans.

Pour the bean mixture into a bean crock or baking dish. Cover and place in the oven. Bake in a *slow oven* — 250° F. — for about 6 hours. Serve hot. Yield: 12 servings.

Variation. — *Dried lima beans* may be baked as directed in the foregoing.

SUMMARY

Meat substitutes:

1. Eggs (good quality proteins)
2. Cheese (good quality proteins)
3. Legumes (beans, peas, lentils) (poor quality proteins; need to be combined with milk, eggs, or cheese to make good meat substitutes)

Approximate composition of eggs (edible portion) (see Figure 32, page 99):

Proteins (good quality) — about 12%

Fat — about 12%

Water — about 75%

Mineral matter — less than 1%

Carbohydrates — none

Vitamins — A++, B+ to ++, C, G+++ (See Note 1, p. 37.)

Two classifications of cheese:

- I. 1. Hard, such as American or Cheddar
2. Soft, such as cottage cheese, Neufchâtel, or Philadelphia cream
- II. 1. Unripened, such as cottage cheese
2. Ripened, such as Swiss cheese

Approximate composition of hard cheese (see Figure 86, page 256):

Proteins (good quality) — 25%

Fat — 33%

Water — 34%

Mineral matter — 4%

Carbohydrates — 2%

Vitamins — A++ to ++, B, C, G+. (See Note 1, p. 37.)

Approximate composition of dried beans (see Figure 88, page 260), peas, lentils:

Proteins (poor quality) — 25%

Fat — very little

Water — 10%

Mineral matter — 4%

Carbohydrates — 60%

Vitamins — A+, B++, C, G. (See Note 1, p. 37.)

REVIEW QUESTIONS AND EXERCISES

1. Some of the egg dishes you learned to prepare for breakfast would be suitable for luncheon or supper. You may know of some other egg dishes. By examining cook books you will be able to learn of more dishes.

Make a list of egg dishes that would be suitable to serve for luncheon or supper.

2. Make a list of cheese dishes suitable to serve for luncheon or supper.

3. Make a list of dishes prepared from any of the dried legumes suitable for luncheon or supper.

Note: If you have a box for filing recipes written on cards, it would be a good idea to write these lists of dishes on cards and file them in the box. Such lists would be very helpful in planning meals. (See page 449.)

4. *Copy the following sentences, writing a word or number in place of each blank.*

a. Two solid foods other than meat containing good quality proteins are — and —.

b. A group of foods called legumes are —, —, and —.

c. The foods named in *b* are rich in carbohydrates and —.

d. Sour milk consists of — and —.

e. Cheese made by treating milk with rennet must be — before it is of the proper texture and flavor.

f. The principal protein of milk is called —.

g. The substance which is found in the juices of the human stomach and which clots the proteins of milk is called —.

h. Hard cheese contains — water and — proteins than milk.

i. Macaroni is a good food to use with cheese because it (macaroni) is rich in —.

j. American cheese is also called — — cheese.

k. When cheese is allowed to stand in order to develop flavor and make it of proper texture, — act upon it.

l. An important mineral substance contained in cheese is —.

m. Baking soda added to water in which legumes are cooked may destroy the — contained in legumes.

HOME WORK

Prepare at least two meat-substitute dishes at your home during the week.

Take a written statement, such as suggested on page 30, to your teacher.

CHAPTER XXI

FRESH VEGETABLES FOR LUNCHEON OR SUPPER — BUYING VEGETABLES

Can you answer these questions? If not, look for the answers as you study this chapter.

1. How many fresh vegetables can you name?
2. Why are we advised to eat vegetables?
3. Name the parts of plants which are used as vegetables.
4. From what vegetables should a thick paring be cut? Why?
5. Why do we scrape new potatoes and carrots rather than pare them?
6. How can parsley which is somewhat wilted be freshened?
7. How long should cabbage cook?
8. Why should sweet potatoes not be bought in as large quantity as white potatoes?
9. What are some points to consider in buying fresh peas?
10. What foods are rich in iron?

Do vegetables give vigor and vim? Can you imagine a spinach bed more than 50 miles square? In no one spot is there such a huge bed of spinach, but all the ground on which spinach is grown in this country measures more than 50 miles square or over 2500 square miles. According to the United States Department of Agriculture, 37,000 acres of land were used for spinach growing in a recent year. This is 12,000 acres more than was used for raising spinach two years before that time.¹ Not only more spinach but more cabbage (see Figure 89), tomatoes, carrots, lettuce, celery, and many other vegetables are being grown. Why are the people of this country eating more fresh vegetables than formerly?

¹ See *Hygeia*, volume 5, No. 4, *We Like Greens* by E. S. Clowes.

Scientists working on the effect of food on the body are proving that fresh vegetables are needed to make us healthy. They are finding that both young and old need vegetables. Physicians are advising their patients to eat vegetables and are observing in them the benefits of vegetables in diet. Teachers, realizing the



Ewing Galloway

FIGURE 89. CABBAGE

This is much more than a back-yard cabbage patch ; it is a large tract of land in which cabbages are grown. People are beginning to realize how valuable are cabbage and many other vegetables. More vegetables are being grown every year.

importance of pupils learning how to keep well and healthy, are advising the eating of fresh vegetables. Fresh vegetables help to give us *vigor* or *strength* and *vim* or "*pep.*" In prescribing a diet for one who desires a *good complexion*, physicians invariably

include fresh vegetables. Eating vegetables helps one to *feel well* and *look well*.

Why are vegetables valuable foods? You will remember that you learned of the treasures found in fruits. There are some of the same kinds of valuable materials in vegetables. Like fruits, vegetables contain *ash or mineral matter, vitamins, water*, and

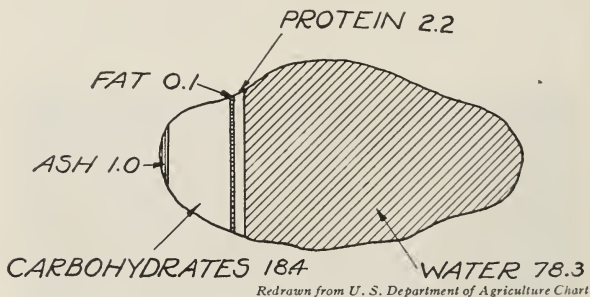


FIGURE 90. COMPOSITION OF AN UNCOOKED POTATO

Notice that, although a potato is solid, it is more than *three fourths water*. It is less than one fifth carbohydrates. Although there is only 2.2% protein in potato, that protein is valuable. Potatoes contain some *ash*, but the ash contains very little *calcium*. White raw potatoes contain *vitamins A+*, *B++*, *C++*, *G++* (see Note 1, page 37). When cooked for more than 15 minutes, some of vitamin C is destroyed.

cellulose. Vegetables generally, however, do not contain so much sugar as fruits. There is only a small quantity of sugar in most vegetables.

Unlike most fruits, such vegetables as potatoes, peas, and green corn contain considerable *starch*. The quantity of starch in potatoes, however, is not nearly so great as that in cereals. Less than 20% of a potato is starch. (See Figure 90.)

Vegetables also contain a very small percentage of protein. Green peas contain more proteins than other green vegetables

— about 7%. Usually, however, we think of *green vegetables* as being prized chiefly for their mineral matter and vitamins.

What kind of mineral matter does our food often lack? You have had some iron to-day, if you have eaten spinach. *Spinach is rich in iron. Our bodies need iron.* Our bodies need not only iron, but all the minerals found in foods. They need one kind quite as much as another. However, *there are several minerals of which we are apt to get too little. Iron is one of them.* We

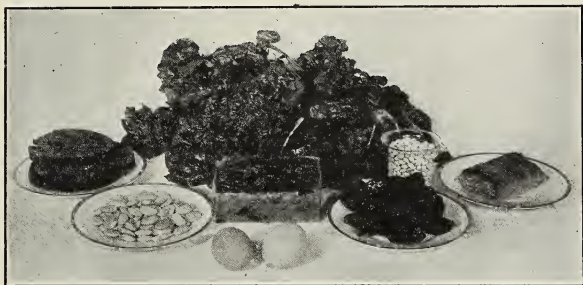


FIGURE 91. IRON-RICH FOODS

Boston brown bread, lima beans, spinach, dates, eggs, prunes, dried beans, shredded wheat.

Egg yolk, beef, especially liver, dried fruits, leafy vegetables, dried legumes, and whole grains are good sources of iron.

should learn to know what foods are rich in iron. (Study Figure 91.) It is not enough to know what foods contain iron: we need to *eat foods rich in iron every day.*

Calcium is another of the minerals of which most persons are likely to get too little. If you had a quart of milk to-day, you had some calcium, as explained on page 65. By studying Figure 92 you will learn that vegetables and some other foods are rich in calcium also. We need to *eat calcium-rich foods every day.* As stated on page 66, drinking milk is the best way to get calcium.

However, eating fresh vegetables helps to supply calcium as well as other minerals.

A third mineral of which we are likely to get too little is phosphorus. If you have eaten eggs, whole-wheat bread, and vegetables to-day, you have had some phosphorus. Milk contains phosphorus as well as calcium. By studying Figure 93 you can learn what foods are rich in phosphorus. Eat phosphorus-rich foods every day.



FIGURE 92. CALCIUM-RICH FOODS

Boston brown bread, dandelion greens, cauliflower, dried beans, cheese, whole milk, spinach, dried figs, buttermilk, orange, celery.

Milk is the best source of calcium.

Vegetables contain all three of the elements — *iron*, *calcium*, and *phosphorus* — of which we are likely to get too little. This is one of the reasons why we need vegetables every day.

If you live in the region of the Great Lakes or in the states that are far away from the ocean, you may not be getting enough *iodine* in your food. Lack of iodine may cause *goiter*. Although only a very small quantity of iodine is needed, that little is very necessary to good health. Iodine is present in sea water. Vegetables grown near the seashore and salt-water fish contain iodine.

It is believed enough iodine will be supplied to persons living near the ocean if milk and green vegetables are used freely.¹

In certain cities situated in the goitrous region, iodine is put in the water supply. Some persons use *iodized salt*, that is, table salt containing a small quantity of iodine. This salt is believed to be beneficial if not too much is used. Excessive use of iodized salt may be harmful.



FIGURE 93. PHOSPHORUS-RICH FOODS

Cheese, wheat bran, kidney beans, milk, spinach, cauliflower, eggs, cocoa, Graham bread, Brussels sprouts.

Why should we know how to classify vegetables? Spinach is the *leaf* of a plant, the carrot is a *root*, the white potato is a *tuber* (a thickened part of an underground stem), celery is a *stem*. Corn and tomatoes are really fruits, but they are used as vegetables. From this we can realize that different parts of plants are used as *food*. To know from what part of a plant a

¹ See page 193 of *The Foundations of Nutrition* by Mary Swartz Rose, The Macmillan Company.

vegetable comes helps one in learning about the composition of vegetables for the following reason: In general it can be said that *roots, tubers, and seeds are starchy vegetables*, while *leaves, stems, and fruits used as vegetables are juicy vegetables* containing only a little starch. All the vegetables contain mineral matter, vitamins, and cellulose, some containing more of these nutrients than others. Knowing the composition of a vegetable helps us to understand its value as a food. This knowledge helps us also to know what vegetables to use together and what vegetables to use with other foods.

Some vegetables, as onions, are *strong-flavored*, while others, as peas, are *mild in flavor*. To be acquainted with the *flavor* of vegetables is helpful in deciding what vegetables to serve together or with other foods.

There is still another classification which helps us in selecting vegetables, namely *color*. Some vegetables, as tomatoes, are decidedly colorful, while others such as parsnips are colorless. In selecting vegetables to use together or with other foods, think of the color of the foods.

Do we need vegetables other than potatoes? *Eat two vegetables other than potatoes every day* is the advice that is being given by those who understand what we need to keep us in good health. Potatoes are generally popular. They are a good food. But to eat no vegetable other than potatoes is unwise. We need the leaves and stems of plants as well as the roots. Then, too, we need those vegetables such as tomatoes and squash which the botanist classes as fruits.

An authority on diet says that the reason why many families do not have a variety of vegetables is that vegetables take time to prepare and many do not know how to cook them so as to make them taste good. Vegetables are delicious when they are cooked properly. Cooking vegetables properly does not mean always to prepare them in ways that require much time and effort. One of the ways of making vegetables taste good is to cook them so as

to save their nourishing materials. This you can learn to do by following the recipes given in this book.

Would it not be fine if you became a specialist in cooking vegetables? If you learn a number of ways of preparing spinach, carrots, cabbage, tomatoes, and many other vegetables which are so good for us, how helpful and useful you can be in your home! The suggestions given in this text should serve as a basis for learning to cook vegetables. Watch for new ideas regarding vegetable cooking and serving. Some vegetables really do us more good when we eat them raw. When you study more about salads (see page 287) you will learn how to use uncooked vegetables.

Why are yellow and green vegetables prized? The carrot with its sunny coloring has a wealth of vitamins. Turn to the vitamin table on page 603 and note that the carrot is a good source of vitamins A, B, C, and G.

If you compare white and sweet potatoes and white and yellow corn, you will see that the yellow vegetable is a better source of vitamins, especially vitamin A, than the white vegetables. Yellow vegetables contain a substance called *carotene* which is a yellow pigment. When foods containing carotene are eaten, the carotene is changed into vitamin A in the liver.

Most yellow vegetables are a good source of vitamin A. However, carotene is found also in green vegetables and in tomatoes. Its yellow coloring is concealed by the green coloring (chlorophyll) of green leaves and the red coloring of tomatoes.

Although yellow and green vegetables abound in food treasures, they are not always cooked so as to make them taste good. Because some of their valuable materials are sometimes wasted in cooking, they do not have the good flavor they should have. If these vegetables are cooked as directed in this text, they will be very palatable.

For what are tomatoes, cabbage, and lettuce valuable? It seems strange to us now that tomatoes were at one time believed

to be harmful. People did not eat them. Tomatoes were merely admired for their brilliant coloring. Now we know that tomatoes are not only good to look at, but very wholesome. Tomato juice is a vegetable food sometimes given to young babies. What do tomatoes contain? They contain vitamins A, B, C, and G, but more of C than of the other three. Cab-



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FIGURE 94. FOODS RICH IN VITAMIN A

Lettuce, tomatoes, whole milk, cabbage, spinach, egg yolks, butter, carrots.

bage and lettuce also contain the four vitamins, especially vitamin C. (See Figures 94 and 95.)

Vitamin C is easily destroyed by cooking. That is why those foods rich in vitamin C should be served raw if they are tasty in the uncooked state. Tomatoes, however, are an exception to this statement. Cooking tomatoes destroys very little of vitamin C. Canned tomatoes contain almost as much vitamin C as fresh ones.

The vitamins in cabbage are partially destroyed by cooking. This does not mean that cooked cabbage is a worthless food. Enough vitamins are left, especially if the cabbage is cooked

quickly, to make it of value as a food. Coleslaw is an especially healthful dish.

Because the bleached inner leaves of head lettuce are apt to be more tender than the outer green leaves, the bleached leaves are often preferred to the green ones. But the *green leaves are richer in vitamin A* than the colorless leaves. The same is true of the outer and inner leaves of cabbage.



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FIGURE 95. FOODS RICH IN VITAMIN C

Turnips, oranges, celery, spinach, cabbage, raspberries, lemons, pineapple, grapefruit, lettuce, tomatoes, carrots.

What are some general rules for vegetable buying? A group of fresh crisp vegetables may make as beautiful a picture as a bouquet of flowers. When you go to market to buy vegetables or fruits, look at their gorgeous coloring. Carefully noting the *color of a vegetable* not only may help you to appreciate and love color, but may help you to make good selections from the standpoint of freshness and flavor.

As a general rule, it is advisable to *buy vegetables that are in*

season, i.e., vegetables grown out of doors. Foods grown in hot-houses are usually more expensive and inferior in flavor. It is thought they do not contain as many vitamins as the sun-ripened food.

Whether you should buy *large or small quantities* of vegetables will depend upon the kind of vegetable and the amount of space for storage in your home. There are some vegetables, as spinach, that spoil readily. There are other vegetables, as green corn, which may keep for several days, but whose flavor is harmed by standing. Other vegetables, as white potatoes, keep for some time. If there is room to store potatoes and other winter vegetables, it is usually economical to buy them in quantity.

Shall you buy vegetables by *weight* or by *measure*? They are sold both ways. As a general rule a vegetable can be more accurately weighed than measured.

What should we keep in mind in buying different vegetables?

1. *Spinach*. — It is easy to see whether spinach leaves are fresh or wilted, green or brown. Fresh green spinach, of course, is desirable. Not only the leaves but the stems are good food. Small leaves have more tender stems than large leaves.

The *roots* must be discarded. Few or no roots are an advantage. Spinach often has much sand clinging to it. Sometimes spinach is washed to remove the sand and is left dripping with water. There is considerable loss when *sandy* or very *wet* spinach is bought by the pound. *One pound of spinach makes 3 or 4 servings.*

2. *Lettuce*. — There are in general two kinds — *leaf* and *head* lettuce. In either kind, look for *freshness*. A *solid head* of lettuce is desirable. If the leaves are close together, the head is *heavy* and *feels solid*.

One pound of leaf lettuce averages 40 leaves; one pound of head lettuce makes 6 or 7 servings; one pound of head lettuce will garnish 12 or 15 salads.

3. *Cabbage*. — The leaves of the best cabbage are *compact*. Compactness of leaves can be judged by the *feel* and *weight*. Look to see if the outer leaves can be used. It is a loss to have to discard them.

Cabbage is sold by *head* and by *weight*, the latter being preferable.

One average-sized solid head weighs from 2 to 3 pounds; one medium head makes 12 or more servings of coleslaw; one medium head when cooked makes 6 servings.

4. *Asparagus*. — The freshness of asparagus can be judged not only by *crisp-looking unbroken tips*, but by the *cut end* of the *stem*. If the stem has been cut for some time, the end will look shriveled. Only tender asparagus is desirable. If the cut end is woody, it will have to be cut away and wasted. Uniformly thick asparagus stalks are usually better than those which are very slender.

Asparagus is sold by the bunch, which varies in size.

5. *Celery*. — Freshness and tenderness are two points to observe. A kind of celery called *Pascal* celery has slender, tender stems. When this kind of celery is broken, it breaks clean, *i.e.*, the broken edge is not fringed with strings. Although stringy celery is coarser, it is often of fine flavor. Sometimes the outer large coarse stems are removed from a bunch of celery. The inner portion is known as *trimmed* celery. It is usually more thrifty to buy untrimmed celery. The coarser stems may be cooked.

6. *Tomatoes*. — The most desirable tomatoes have *much meat* and *few seeds*. Such tomatoes are solid. Those appearing in the market the first of the season are usually less solid, having less meat and more seeds. Round, smooth tomatoes are more desirable than those having many creases. (See Figure 96.)

Tomatoes are sold by the pound or by the basket. *One pound* contains 3 *large* or 4 *medium* tomatoes.

7. *Carrots*. — Young carrots usually have their leaves

attached to the roots. The *freshness* of the young vegetable can be judged by the *condition* of the leaves.

The leaves are usually cut from the older vegetables. The older carrot roots are cheaper, larger, tougher, and less delicate in flavor than the younger roots.

Young carrots are often sold by the bunch. The number of carrots in each bunch varies. There are often *5 to 9 carrots in a*



FIGURE 96. POOR AND GOOD TOMATOES AND PEAS

Because the tomato on the left has more creases than the other, it is not so desirable.

The peas on the left are not fully developed. It is wasteful to buy such peas. The other peas are well developed, but they are not too old to be tender.

bunch. Older carrots are sold by the pound, quart, or peck. *One pound* contains *6 to 8 medium* carrots.

8. *White Potatoes.* — *Smooth* potatoes having *shallow eyes* are desirable. For general use it is more thrifty to buy potatoes of *medium* or even small size. However, where it is necessary to save time, it is unwise to buy small potatoes, since much time is required to wash and pare them. For stuffed baked potatoes or other special dishes, extra large potatoes, grown in some of the western states, may be purchased.

Potatoes which, when cooked, are mealy rather than soggy, are desirable. It is difficult to determine this quality before cooking.

New potatoes are usually sold by the pound; old potatoes by the peck or bushel. *One pound* contains *4 medium-sized* potatoes; *one bushel* weighs *60 pounds*.

9. *Sweet Potatoes*. — When cooked, some sweet potatoes are *dry* and *mealy*, while others are *moist* and *sweeter*. The mealy potatoes, which are known as Jersey sweet potatoes, are preferred for plain baking or cooking. If the potatoes are to be candied, the moist, sweeter kind is desirable. Some sweet potatoes are dried in a kiln before being placed on the market. Such potatoes are usually mealy when cooked.

Sweet potatoes are sold by the pound, or by the quart or peck. *One pound* contains *3 or 4* sweet potatoes.

Unlike white potatoes, sweet potatoes do not keep well. For ordinary home use, it is unwise to buy sweet potatoes in large quantity.

10. *Sweet Corn*. — As the name suggests, sweet corn has a *fine sweet flavor*, quite superior to that of field corn. The ears of sweet corn are shorter than those of field corn. The silk of ripened corn is brown. The surest way to test the kernels is to pull back the husks. Ripe sweet corn has well-developed kernels, usually white. However, some varieties, such as golden bantam, are yellow. When corn is not sufficiently ripened, the ears are not well filled. Buying such corn is like buying short measure. None of the kernels should be discolored. When the kernels of properly developed sweet corn are broken, juice of milky consistency appears. Corn is sold by the *dozen ears*.

11. *Peas*. — Examine the pods. When fresh and not too old, the pods are *crisp* and *green*, not withered and brownish green. The pods should be *well filled*. However, when the pods are too well filled, the peas may be overripe and tough. Do not buy

shelled green peas. They should not be shelled until they are to be cooked. (See Figure 96, page 276.)

Peas are sold by the pound or by the quart. *Three pounds* of peas make *6 servings*.

12. *String Beans*. — String beans are of two kinds — *green beans*, having green pods, and *wax beans*, having light yellow pods.

Fresh string beans have *crisp* pods. Test their crispness by breaking one. It should snap. Also note whether the strings are tender and the beans small. When string beans are over-ripe, they are tough.

String beans are sold by the pound or quart. *Two pounds* of string beans make *6 generous servings*.

What shall we do with vegetables when they come from market? Sweet corn that is cooked immediately after it has come from the garden has a very different flavor from corn that has been allowed to stand for some hours or over night before cooking. *Sweet corn and peas* are at their best when cooked immediately after gathering. If this is not possible, cook them as soon as you can after they come from market.

Leaf and stem vegetables, especially those eaten raw, should be fresh and crisp when sent to the table. If they are fresh and crisp when they come from market, they should be kept fresh until used. If they are wilted, they must be freshened before serving. The best way to keep *lettuce, parsley, celery, or radishes* fresh or to freshen them when wilted is to put the vegetable in cold water. Then drain away the water and place the vegetable in a tightly covered jar or in a covered aluminum container. Put the container in the refrigerator until ready for use. If the vegetable is wilted when placed in the jar, it will usually become fresh.

Those vegetables which we store away in the fall and use in winter, such as potatoes, carrots, beets, and turnips. should be kept in a cool, dry place.

How are vegetables cleaned? Root vegetables sometimes have bits of soil clinging to them. They often have a rough surface. To clean them well with the least effort, use a brush. *Scrub potatoes, carrots, beets, turnips, and parsnips.* Often celery is easily cleaned with a brush.

Spinach usually has sand clinging to it. Care must be taken to remove the sand. To do this a brush will not help. Housekeepers find that washing it in warm water is more effective than washing it in cold water. Use two large pans containing *warm* water. Remove the roots from the spinach. Tear the leaves apart. Put the vegetable in one pan. Wash the leaves, then lift them into the second pan. Wash again. Pour the sandy water from the first pan. Rinse and again fill with warm water. Lift the spinach from the second pan into the first one. Repeat, until no sand remains on the spinach. Since the spinach is wilted when it is cooked, the slight wilting produced by the warm water will do no harm.

Because *onions* have a strong odor, it is well to wash them under running water or keep the hands under water so as to rinse away any onion juice which may touch the fingers.

To wash *cabbage*, cut the head into quarters. Place them in cold water. If wilted, the cabbage should remain in the cold water until freshened.

How thick should vegetable parings be? Most vegetables have thin skins. It is wasteful to pare such vegetables thick. Fall or winter *potatoes* should be *pared as thin* as possible. *New potatoes and carrots* have such a thin skin that they should be *scraped*.

If unpared vegetables are cooked, it is easy to *peel* them, removing only the skin and none of the edible portion. Removing the skins from vegetables after cooking has the advantage also of saving more of the nutrients than when the vegetable is pared before cooking.

Turnips and *rutabagas* have a very thick tough skin. Con-

trary to the rule of paring vegetables, these vegetables should be pared thick so as to remove the thick woody skin.

How are scalloped vegetables prepared? In chapter xx we learned some main dishes for luncheon or supper. In addition to those dishes, vegetables may be used as main luncheon or supper dishes. A scalloped vegetable makes a good main dish for luncheon or supper. A scalloped dish is always baked in the oven and often covered with buttered bread crumbs.

We serve a scalloped dish at the table from the dish in which it was baked. There are several advantages in serving a baked food in this way: (1) The food may be served very hot, (2) there is a saving in dish washing since the baking dish serves as a serving dish as well as a cooking utensil, and (3) if there are browned crumbs on the top, the food looks more attractive than if it had been poured into another serving dish.

Soft or dry bread crumbs may be used for scalloped dishes. Soft crumbs are better for many foods. If butter is mixed with the crumbs, the flavor and appearance are improved and the food value is increased.

BUTTERED BREAD CRUMBS

1 cup *soft* bread crumbs — 1 tablespoon butter
or

$\frac{3}{4}$ cup *dry* bread crumbs — 1 tablespoon butter

Put the butter in a saucepan and heat until it is melted. Add the crumbs; stir to mix. Do not brown the crumbs.

Recipes for some scalloped dishes follow:

SCALLOPED CORN

1 can corn, No. 2	$\frac{1}{8}$ teaspoon pepper
$\frac{2}{3}$ cup milk	2 cups soft bread crumbs
$1\frac{1}{4}$ teaspoons salt	2 tablespoons butter

Mix the corn, milk, and seasonings.

Butter the crumbs. Divide the crumbs into 3 portions — $\frac{2}{3}$, $\frac{1}{3}$, $\frac{1}{3}$. Combine the corn mixture and crumbs in layers as follows:

Bake uncovered in a *hot oven* — 400° *F.* — for 45 minutes or until the crumbs are brown. Serve hot. Yield: 6 servings.

Cabbage used to be classed among the strong-flavored vegetables. Consequently it was cooked in much water and the water drained away after cooking. Much of the cabbage that we find in our markets now is more mild in flavor. Cooking most of the cabbage in much water to get rid of strong flavor is unnecessary.

$\frac{1}{2}$ head cabbage, about $1\frac{1}{2}$ pounds $\frac{1}{2}$ cup cheese, grated or cut into bits
1 cup medium white sauce Buttered bread crumbs — 1 cup
soft or $\frac{3}{4}$ cup dry

While the cabbage is cooking prepare the buttered crumbs (page 280) and the medium white sauce (page 246). When the last portion of milk is added to the sauce, add the cheese. Continue to stir and cook the sauce in the usual way until the mixture boils.

Many other vegetables may be scalloped by combining with white sauce, covering with buttered crumbs, and browning in the oven. *A general rule to follow in scalloping vegetables is:*

1 cup medium white sauce 2 or 3 cups vegetables
2 cups buttered bread crumbs

Scalloped potatoes make a good main luncheon or supper dish, especially when they are combined with cheese or bacon. Usually scalloped potatoes are not covered with bread crumbs.

SCALLOPED POTATOES

4 cups raw potatoes, sliced thin	$\frac{1}{4}$ cup flour
$2\frac{1}{2}$ teaspoons salt	3 tablespoons butter
$\frac{1}{8}$ teaspoon pepper	Milk, about 2 cups

Scrub and pare potatoes. Slice them and drain. Measure the seasonings and flour and mix them.

In a baking dish put a layer of potatoes. Sprinkle some of the flour mixture over them. Add some of the butter cut into bits.

Now add another layer of potatoes, flour mixture, and butter. Repeat adding the layers of material until all are in the dish. Then add enough milk to reach the top layer of potatoes. Cover the dish.

Bake in a *hot oven* — 400° F. — for about 15 minutes. Uncover, continue baking at 350° F. for about $\frac{3}{4}$ hour or until tender. Yield: 6 servings.

Variation. — Cut $\frac{1}{2}$ cup *cheese* in thin slices. Add it in layers with the other ingredients.

SCALLOPED POTATOES WITH BACON

4 cups raw potatoes, sliced thin	$1\frac{1}{2}$ teaspoons salt
$\frac{1}{4}$ pound sliced bacon, browned	$\frac{1}{8}$ teaspoon pepper

Cook the bacon. (See page 100.) Put layers of these materials in a baking dish. Add the bacon fat. Cover the dish. Bake in a *hot oven* — 400° F. — for 45 minutes. Yield: 6 servings.

CANDIED YAMS (Candied Sweet Potatoes)

6 medium-sized sweet potatoes	$\frac{1}{2}$ cup sugar, brown or granulated
$\frac{1}{4}$ cup water	3 tablespoons water
$\frac{1}{2}$ teaspoon salt	2 tablespoons butter

Scrub and pare the potatoes. Cut them in halves lengthwise. Place them in a baking pan. Add $\frac{1}{4}$ cup of water. Cover and bake about 20 minutes or until the potatoes are somewhat tender.

In a small pan put the salt, sugar, three tablespoons of water and the

butter. Heat until the sugar is dissolved. Pour part of the sirup over the partially cooked potatoes. Continue to bake *uncovered* at 400° F. for 20 to 30 minutes or until browned and tender. Baste with the remainder of the sirup during baking.

Candied sweet potatoes are often parboiled on top of the stove before baking in the sirup. The method given in this book is both easier and less wasteful of mineral matter and other nutrients.

What are some good spinach dishes? Sometimes vegetables are cooked in water on the surface burner, chopped, and then baked in the oven. Cooking vegetables in water may result in some loss of mineral matter, vitamins, and other nutrients. Then too, it means much work to cook vegetables both on top of the stove and in the oven. As shown by the following recipe, uncooked vegetables may be chopped and baked in the oven without previous cooking.

BAKED CARROTS AND SPINACH

Prepare a mixture of

1 egg, beaten	Speck of pepper
1½ teaspoons salt	2 cups carrots, scrubbed, scraped, and chopped

Pour this carrot mixture into a baking dish. On top of this place the following spinach mixture.

½ pound fresh spinach, washed and chopped	Speck of pepper
¾ teaspoon salt	2 tablespoons butter, cut into bits

Mix these ingredients together. Pour them over the carrots. Cover the baking dish. Bake in a *moderate oven* — 375° F. — for 1 hour.

Serve this vegetable with 1 pint of medium white sauce. (See page 246.) Use the sauce as you would gravy. Yield: 6 servings.

This dish with its two vegetables is colorful. Its flavor is delicious and its food value is excellent. Besides containing valuable ash, these vegetables are especially rich in vitamins, as shown by the following:

	VITAMINS			
	A	B	C	G ¹
Spinach, cooked	+++	+	+ to ++	++
Carrots, young, cooked	*	++	+	*
Carrots, young, raw	+++	++	++	++

¹ See footnote, page 37.

Even if you think you do not like carrots and spinach, try this dish served with white sauce. Its flavor may surprise you.

SPINACH SOUFFLE

$\frac{1}{4}$ pound uncooked spinach, chopped	$\frac{1}{4}$ cup grated cheese
2 egg yolks	$\frac{1}{8}$ teaspoon pepper
$\frac{1}{2}$ cup very thick white sauce (page 246)	2 egg whites

Wash the spinach carefully as directed on page 279. Chop it.

Beat the egg yolks. Add the sauce, cheese, and pepper. Mix this with the spinach.

Beat the egg whites until stiff and fold them into the spinach mixture.

Grease ramekins or custard cups. Place the cups in a shallow pan. Add boiling water to the pan to fill it to the depth of an inch.

Bake in a slow oven — 350° F. — for 1 hour or until firm. Place the molds on plates. Serve at once. Yield: 5 servings in custard cups of $\frac{1}{2}$ cup or 4 ounce capacity.

When *tomatoes* are in season, a delicious luncheon or supper dish may be prepared from ripe tomatoes.

BAKED TOMATOES ON TOAST

6 sound tomatoes	Butter
Salt, pepper	6 slices buttered toast

Wash the tomatoes. Cut them in halves crosswise. Place the tomatoes cut side up in a glass pie plate or other baking dish. Put a dash of salt and of pepper on each half tomato.

Bake *uncovered* in a *hot oven* — 450° F. — 20 to 25 minutes or until the tomatoes are soft, but not broken.

Have ready 6 slices of buttered toast. Place these on a platter or chop plate. Put 2 halves of tomato on each piece of toast. If desired, garnish with parsley. Serve at once. Yield: 6 servings.

SUMMARY

Fresh vegetables are necessary in the diet to help keep us healthy. Eat at least two vegetables other than potatoes every day.

Vegetables contain chiefly mineral matter, vitamins, carbohydrates, proteins, and water.

Roots, tubers, and seeds used as vegetables are starchy.

Leaves, stems, and fruits used as vegetables are juicy; these contain little starch.

All fresh vegetables are valuable for *mineral matter* and vitamins.

Some *general rules* to follow in *buying vegetables* are :

Buy vegetables in season.

Buy in large quantity only those vegetables which keep well.

Buy most vegetables by weight, if possible.

Some *points* to observe in *buying different vegetables*:

Spinach — fresh, green, small leaves, reasonably free from roots, sand, and water.

Lettuce — fresh, crisp, head lettuce, solid, and heavy.

Cabbage — compact, determined by feel and weight; outer leaves fresh.

Asparagus — crisp unbroken tips; freshly cut end; uniformly thick stem.

Celery — fresh, tender.

Tomatoes — much meat; few seeds; solid; round and smooth.

Carrots — young — fresh green condition of leaves.

Potatoes — smooth; shallow eyes; medium size.

Sweet potatoes — unspotted, smooth, brownish yellow.

Sweet corn — brown silk; well-developed kernels, usually white or yellow in color; juice of milky consistency.

Peas — pods — crisp, green, well filled.

String beans — crisp pods, tender strings, small beans.

REVIEW QUESTIONS AND EXERCISES

Some of the following statements are true, and some are false. Read each statement very carefully and decide whether it is true or false. On a piece of paper or in your notebook, list the numbers corresponding to the statements. After each number write the word True or the word False.

1. Spinach contains much starch.
2. In buying potatoes one should select deep-eyed ones.
3. The ears of sweet corn are smaller than those of field corn.

4. Root vegetables in general contain carbohydrates.
5. Tomatoes having much meat are usually solid.
6. Carrots are always sold by the quart or peck.
7. All vitamins in tomatoes are lost by canning.
8. Bleached lettuce leaves contain more vitamins than the green leaves.

9. Cabbage may be cooked in water in about seven minutes.
10. Many yellow vegetables are good sources of vitamin A because they contain carotene.

Answer each of these questions with one word or with few words. Without copying the questions write the answers on a piece of paper or in your notebook. Number the answers as the questions are numbered.

11. How many vegetables other than potatoes should be eaten daily?
12. What vegetable other than new potatoes should be scraped instead of pared?
13. Name two foodstuffs which make vegetables in general valuable.
14. Name two kinds of lettuce.
15. When buttering bread crumbs for scalloped dishes, how much butter should one use for each cup of soft bread crumbs?
16. How are the leaves of a good head of cabbage arranged?
17. What three parts of plants contain starch?
18. Name three minerals of which there is likely to be too little in our diet.
19. How many medium-sized tomatoes are there in a pound?
20. From what two vegetables should a thick paring be cut?

HOME WORK

1. If possible, go to market during the week and select two or more vegetables. Take a report on vegetable buying to your teacher, somewhat as follows:

NAME OF VEGETABLE	POINTS INDICATING DESIRABILITY	COST BY THE POUND OR MEASURE

Pupil's name : Date :

2. Cook vegetables in your home at least twice during the week.

CHAPTER XXII

SALADS AND OTHER DISHES FOR LUNCHEON OR SUPPER

Can you answer these questions? If not, look for the answers as you study this chapter.

1. What kind of salad dressing is uncooked?
2. Which costs the most — olive oil, cottonseed oil, or corn oil?
3. Is one kind of vegetable oil more nourishing than the others?
4. Of what use are oils and fats in the body?
5. What is the principal food of Eskimos? Why do these people need this food?
6. Is butter pure fat?
7. Why is a salad oil a good food to use with lettuce or other salad plants?
8. What kind of salad makes a good substitute for desserts?

Why is it a good plan to serve salad at luncheon or supper? *Eat a salad twice a day* is the advice given by McCollum and Simmonds, authorities on diet and right living.¹ If we are to have two salads daily, the luncheon menu as well as the dinner should contain a salad. Very appetizing salads may be made of eggs and cheese. *Such salads are good meat substitutes* and may be used as the main dish of a luncheon.

A salad is a cold dish. We have learned that the luncheon should contain *at least one hot dish*. If a soup and possibly a hot beverage are used for luncheon, a salad is a suitable main dish.

What makes a salad look inviting? Lettuce or some other uncooked food usually forms part of a salad. The uncooked food looks attractive when it is *crisp*. Even though a cooked food is used, the food should be cold when served as a salad.

¹ See page 115 of *Food, Nutrition, and Health* by McCollum and Simmonds.

Whether the food used is uncooked or cooked it should be not merely cool, but, if possible, *chilled*.

A salad is served with a salad dressing. Usually lettuce and other green foods used in salad making are moistened to keep them crisp. If the salad green is wet and a salad dressing is added, the water dilutes the salad dressing. This makes the salad unattractive. When ready to use, the greens and other foods used in salad making should be *crisp, cold, and dry*.

The way to keep lettuce crisp and cold has been given on page 278. *Lettuce may be dried* as follows: Spread a clean towel on a work table. Place lettuce leaves on one end of the towel. Fold the other end of the towel over the leaves. Gently press the towel so that it absorbs the moisture.

Not only should the lettuce and other salad materials be cold, but the salad dressing should be chilled. This means that if a salad dressing is cooked in preparing it, it should be made some time before it is to be used so as to allow time for chilling.

A salad dressing contains vinegar, lemon juice, or some other acid and seasoning. If the dressing is poured over the salad and left for any length of time, the dressing may wilt the salad green. For this reason *dressing should never be added to a salad until it is just ready to serve*.

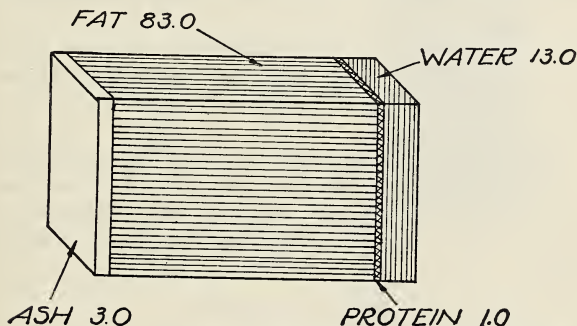
Why do we need fats? The food of the Eskimo is largely oil and fat. Why do the people of cold climates need this kind of food? Fat or oil gives one energy or heat. The Eskimo needs such food to keep him warm.

We have learned that carbohydrates produce energy or heat in the body. Fats do the same thing in greater degree. Fats give about $2\frac{1}{4}$ times as much energy as do carbohydrates. That is, a pint or pound of pure oil gives to the body approximately $2\frac{1}{4}$ times as much energy or heat as a pound of pure starch.

During the World War, fat was one of the foods which were scarce. Some people did not get as much fat as they needed. Although enough of other kinds of foods was given them, those

deprived of fatty foods often had a feeling of hunger. This was due to the fact that most foods are much more quickly digested than fats. Because fats are slow to digest, they give a person a feeling of satisfaction, of having had plenty to eat.

We need to eat some fat. Butter and cream are wholesome fats; they contain not only fats, but vitamins. Bacon fat and the oils extracted from the olive, from the seeds of the cotton



Redrawn from U. S. Department of Agriculture Chart

FIGURE 97. COMPOSITION OF BUTTER

Although butter is rich in *fat*, it is not pure fat. The percentage of *water* in butter is perhaps surprising. Butter is one of the foods rich in vitamin A, +++.

plant, and from corn kernels are also good fats. These fats, however, are almost lacking in vitamins. Butter is not pure fat. (See Figure 97.) Salad oils are 100% fat.

As has been explained, salad greens are rich in mineral matter and vitamins. They contain very little fat. A salad dressing containing a vegetable oil makes a good accompaniment to a salad.

What salad oils shall we buy? Olive oil sells for about four times as much as cottonseed or corn oil. Why are some persons

willing to pay the greater price for olive oil? The only advantage in buying olive oil is that it has a flavor which some persons like very much. Fresh cottonseed and corn oils have no flavor. They are, however, as nutritious as olive oil. Unless the flavor of olive oil is especially pleasing, buy corn oil or cottonseed oil for salads.

Salad oils are put up in either bottles or cans. It is cheaper to buy the oil in cans. Although the rate is higher for small quantities than for larger quantities, it is not advisable to buy so much oil that it will become rancid before it can be used. When oil spoils, it becomes rancid and has a very disagreeable taste. Oils should be kept in a cold place to keep them from spoiling.

How are salad dressings made? The simplest salad dressing is made of salad oil, vinegar or lemon juice, and seasoning. These ingredients are merely mixed together. They are not cooked. Such a dressing is called *French dressing*. A recipe follows:

FRENCH DRESSING

1 teaspoon salt	6 tablespoons salad oil
$\frac{1}{2}$ teaspoon paprika	2 tablespoons vinegar or lemon juice

Put all ingredients in a bowl. Beat with a wheel egg beater until they are well blended. Stir just before serving.

Variations. — Other flavoring may be used in French dressing. A faint *onion flavor* may be obtained by rubbing the bowl in which the dressing is to be mixed with a piece of onion or a clove of garlic.

Celery salt may be added — $\frac{1}{4}$ to $\frac{1}{2}$ teaspoon for the above quantity of dressing.

Sugar may be added — 1 tablespoon for the above quantity of dressing. Some like the addition of sugar when the dressing is served with fruit salad. *One tablespoon sugar, 1 teaspoon celery salt, 7 drops Tabasco sauce* added to the plain French dressing give a pleasing flavor.

Tinting and Flavoring. — Finely chopped mint or parsley may be added. This not only flavors the dressing, but tints it a pleasing green.

It is convenient to put French dressing in a bottle to serve it. (See Figure 98.) Because the oil separates from the vinegar, the dressing can be mixed by shaking the bottle just before serving.

Mayonnaise also is an uncooked salad dressing. It is, however, very different from French dressing in appearance, taste, and method of making. Mayonnaise contains oil, vinegar, egg, and seasoning. The problem in making it is to combine the oil and egg so they will not separate. To accomplish this, (1) have the oil and eggs chilled, and (2) add the oil slowly to the eggs, beating the mixture continuously.

In making mayonnaise, we separate the oil into drops by beating, and coat each drop with egg. When this is done, the oil will not separate from the egg.

The mixture will also become thick. The recipe follows:

MAYONNAISE

1 egg yolk	$\frac{1}{2}$ teaspoon sugar
1 tablespoon vinegar	Few grains cayenne
$\frac{1}{4}$ teaspoon mustard	1 cup vegetable oil
$\frac{3}{4}$ teaspoon salt	1 tablespoon lemon juice

Put the egg yolk in a bowl. Add the vinegar. Mix well. Then add the seasoning.

Beat with a wheel egg beater. While beating, add the oil in small quantities — about $\frac{1}{2}$ teaspoon at a time. When the mixture begins



FIGURE 98. A SALAD-DRESSING BOTTLE

Notice that on this bottle the proper amounts of vinegar and oil for salad dressing are indicated. These ingredients may be poured into the bottle without previous measuring and the seasonings added.

to thicken, the oil can be added in greater quantities. After the oil is all added, add the lemon juice, beating only long enough to mix it with the other ingredients. Store in a cool place until ready to use.

Mayonnaise should be thick and smooth. If it is thin and curdled, the oil has been added too quickly or the mixture has not been beaten thoroughly.

To remedy curdled mayonnaise, in a clean bowl beat another egg yolk. Add the dressing gradually, beating constantly.

Variations. — *Thousand Island dressing* may be made by adding to 1 cup mayonnaise the following: 1 hard-cooked egg chopped, 1 tablespoon each chopped green pepper and chopped pimientos, and $\frac{1}{2}$ cup chili sauce.

COOKED SALAD DRESSING

3 tablespoons flour	1 teaspoon salt
1 tablespoon sugar	$\frac{1}{4}$ teaspoon mustard
3 tablespoons butter or substitute	$\frac{1}{8}$ teaspoon paprika
1 cup milk (sweet or sour)	1 or 2 eggs
$\frac{1}{4}$ cup vinegar	

In the top part of a double boiler, placed directly over the flame, make a white sauce of the flour, sugar, butter, and milk.

In a bowl, beat the eggs. Pour part of the sauce over the eggs, stirring while pouring. Return the egg mixture to the double boiler. Stir and cook *over hot water* until the egg is thickened. Then remove the top part of the double boiler from the lower part. Stir in the vinegar. Set aside to cool.

EGG SALAD

Lettuce	$\frac{1}{2}$ cup chopped soft-shelled walnuts
6 hard-cooked eggs	Mayonnaise or cooked dressing
1 teaspoon salt	Paprika

Arrange clean, crisp, dry lettuce leaves in a salad bowl or on individual plates for serving.

Cut the cooked eggs (which have been allowed to cool) into wedge-shaped pieces or into slices. Place them on top of the lettuce. Sprinkle the salt over the eggs. Add the nuts. Then add about 6 tablespoons of salad dressing or enough to make the mixture tasty.

Put several dashes of paprika on top of the salad dressing. Serve at once. Yield: 6 servings.

Variation. — *Stuffed-egg salad* may be made by cutting the hard-cooked eggs in halves lengthwise. Remove the yolks. Mash them. Moisten with a little salad dressing. Taste; if more salt is needed, add it. Refill the halved whites with the yolk mixture. Arrange the stuffed eggs on lettuce leaves. Add nuts, if desired. Serve with salad dressing, sprinkled with paprika.

Golden salad, containing cheese and uncooked vegetables, is an especially delicious, attractive, and nourishing salad.

GOLDEN SALAD

1½ cups finely shredded cabbage	½ teaspoon salt
1 cup grated carrots	2 tablespoons lemon juice
½ cup grated cheese	Salad dressing, lettuce, paprika

Wash cabbage as directed on page 279. If it is wilted, let it remain in water until it is crisp. *Shred the cabbage very fine.* The attractiveness of a salad made with cabbage is dependent in part upon the way the vegetable is shredded. When measuring the shredded cabbage, press it into the cup.

Scrub and scrape the carrots. Grate them or put them through a food chopper.

Mix the shredded cabbage, grated carrots, and cheese. Add the lemon juice and mix. Then add salad dressing — mayonnaise or cooked dressing. Sprinkle paprika over the dressing. Place on clean, crisp, dry lettuce leaves. Serve at once. Yield: 6 servings.

A *fish salad* served occasionally makes a good main dish for luncheon. Canned fish such as tuna fish and salmon may be used as well as any cold cooked fish. Fish should not be considered as a meat substitute. According to McCollum, the protein of fish, from a chemical standpoint, is much like that of ordinary meats.¹

FISH SALAD

1 can salmon or tuna fish (No. 1) or	1 cup celery, cut into bits or
1 cup cold cooked fish, torn into bits	1 cup finely shredded cabbage
	Salad dressing, lettuce

¹ See page 71 of *Food, Nutrition, and Health* by McCollum and Simmonds.

If canned fish is used, drain the oil from it; remove the bones and bits of skin. If cold cooked fish is used, remove the bones.

Mix the fish and vegetable. Add salad dressing. Place on lettuce leaves. Serve at once. Yield: 6 *servings*.

Potato salad is a nourishing dish and makes a good main dish for luncheon. Although potatoes contain some valuable proteins, the quantity of proteins is small. Therefore, we cannot consider potato salad a meat substitute unless considerable eggs, fish, or other protein-rich food is added.

POTATO SALAD

3 cups cold boiled potatoes cut in cubes	2 teaspoons salt
1 slice onion, chopped fine	$\frac{1}{4}$ teaspoon paprika
4 tablespoons parsley, chopped fine	6 tablespoons vegetable oil
4 tablespoons pickles, chopped fine or	2 tablespoons vinegar
1 cup fresh cucumbers, diced	2 hard-cooked eggs
1 cup celery, cut into bits	Lettuce

Mix the potatoes, onion, parsley, pickles (or cucumbers), and celery. Add the seasoning. Then pour the oil over the mixture, carefully, tossing the vegetables with a spoon or fork until the oil coats each cube of potato. Then add the vinegar and mix again.

If this salad is put in a cool place, it is not harmed but improved by standing.

When ready to serve, place the salad on clean, crisp, cold lettuce leaves. Garnish with the hard-cooked eggs cut into slices or wedge-shaped pieces. Yield: 8 *servings*.

How may fruit salads be used instead of desserts? Why always have dessert for luncheon or dinner? Why not have occasionally a salad in place of a dessert? Salads made of fruits are delicious. A fruit salad eaten at the close of a meal makes a good substitute for a dessert. Then, too, serving a salad instead of a dessert for luncheon is one of the ways of getting in two salads a day. (See page 287.)

Some *suggestions* for fruit salads follow:

Ripe *bananas*, peeled and scraped, rolled in chopped *nuts*.

Equal measures of *pineapple*, *Tokay grapes*, *marshmallows*, a few *nuts*.

Pears or *pineapple* or *apricots* or *peaches* with cream *cheese* or cottage cheese; nuts may be added.

Equal measures of *pineapple* and *bananas* with half measure of cherries.

Equal measures of chopped *apple* and *celery*; nuts may be added.

One measure of sliced *oranges*, $\frac{1}{2}$ measure of *dates*, stoned and cut into pieces.

Fruit used as a salad should be served on lettuce (and the lettuce eaten, as has been stated previously). A salad dressing may be used in serving the salad.

The simplest dressing is French dressing. (See page 290.) If lemon juice is used instead of vinegar, French dressing is especially good for fruit salads.

Cooked dressings may be made using fruit juices instead of vinegar. Canned pineapple is one of the most popular fruits for salad making. The sirup drained from canned pineapple may be used in making a salad dressing suitable for serving on any fruit salad. The recipe follows:

FRUIT SALAD DRESSING

Juice of 1 lemon	1 egg yolk
$\frac{1}{2}$ cup pineapple sirup	$\frac{1}{4}$ cup sugar
1 tablespoon cornstarch	1 egg white
Pinch salt	

In the top part of a double boiler, put the lemon juice, pineapple sirup, cornstarch, and salt. Mix well. Stir and cook the mixture over boiling water until it thickens. Continue to cook for 5 minutes longer.

Mix the egg yolk and sugar. Stir it into the hot mixture. Stir and cook until the egg thickens.

Beat the egg white stiff. Fold it into the hot mixture.

Replace the hot water in the lower part of the double boiler with cold water. Let the salad dressing remain surrounded by cold water until it is cool. Then place the dressing in the refrigerator to chill.

Variation. — If desired, $\frac{1}{2}$ cup of *whipped cream* may be used instead of the egg white. Do not add the whipped cream until the dressing is cold; fold the whipped cream into the dressing just before serving. Yield: 6 servings.

Should fried foods be used? What may cause much fat to soak into foods during frying? Some persons like fried foods for the main dish of luncheon or supper. There is no denying that many fried foods are good, but it is questionable whether one should eat them for this reason. Foods fried in fat usually absorb a good deal of fat. The large quantity of fat makes the foods digest slowly.

If foods are cooked by frying, they should be fried in such a way that they do not absorb a great deal of fat. Less fat is absorbed by food fried in deep fat in a kettle than by food fried in a small quantity of fat in a shallow pan. Let us learn about the proper temperature for deep-fat frying.

Experiment 19: *To show whether food should be fried in warm or in hot fat.*

(a) Put some fat suitable for deep-fat frying, such as lard, vegetable oil, or solid vegetable fat, into an iron frying kettle. Heat the fat. As it heats insert a thermometer in it occasionally to get the temperature. When the fat reaches 300° F., drop in it a piece of stale bread. Let the bread stay in the fat for 1 minute. Then with a wire spoon lift the bread out of the fat. Let it cool somewhat. Then cut the bread in two. How far has the fat soaked into the bread?

(b) Continue to heat the fat until its temperature is 365° F. Drop another piece of bread in the fat. Let it stay in the fat for 1 minute; then remove it. When it is cool enough to handle, cut the bread in two. How far has the fat soaked into the bread?

(c) Which temperature do you think is better for frying foods?

It is very important to have fat for frying *hot*. Foods absorb fat when it is not hot enough.

How is the temperature of fat tested for deep-fat frying? If one does not have a thermometer in the home, the temperature of fat may be tested by observing how rapidly bread is browned in the fat. Fat is the right temperature for frying (a) *oysters and cooked foods* (such as croquettes) if bread browns in 40 seconds, and (b) *uncooked foods* (such as doughnuts) if bread browns in 60 seconds.

When food has been fried and removed from the kettle, test it before adding the second quantity of food.

Fat for frying is much hotter than boiling water. For this reason one should handle it very carefully lest accidents occur. A *deep kettle* should be used (1) to hold a deep bath of fat, and (2) to prevent fat bubbling over when food is dropped in it. Put the food carefully in the hot fat so that it does not spatter. If a kettle of hot fat must be lifted or carried, *wrap a towel around the hand* before grasping the handle of the kettle.

How are codfish balls made? Salted codfish is very salty. By cooking the fish with a food like potatoes, requiring salt, the mixture is pleasantly seasoned. Balls made of codfish and potatoes, browned in deep fat, are delicious. Not only codfish and potatoes but eggs are used in making these balls. The egg is used for several reasons — principally to hold the foods together and to keep fat from soaking into the mixture. Because eggs harden when they are heated, they harden at once when they are dropped into the fat. This forms a covering through which the fat cannot soak readily.

CODFISH BALLS

4 small potatoes	1 egg
1 cup boiling water	$\frac{1}{2}$ tablespoon butter
1 cup codfish broken into bits	$\frac{1}{8}$ teaspoon pepper

Scrub the potatoes, pare them, and cut them into quarters. There should be 1 pint of potatoes.

Put the water in a saucepan. When it is boiling, add the potatoes and fish. Cover the pan. Let the water boil gently so the potatoes will not break up. When the potatoes are tender, drain the water from them. Then *dry very thoroughly* by shaking the pan over a low flame. If the potatoes and fish are not dried thoroughly, the balls will break into pieces when they are fried. Mash the potato mixture.

Beat the egg. Add it and the butter and pepper to the potato mixture. Mix well.

Have the hot fat ready. Test its temperature as suggested on page 296. Drop a tablespoon of the mixture into the fat. The balls look

more attractive with rough edges than with smooth. Drop more balls into the fat — not more than 5 at a time.

When golden brown in color, lift the balls from the fat with a wire spoon. Drain for a minute on unglazed paper. Serve at once. Garnish with parsley.

Codfish balls may be served with white sauce, cheese sauce, or horse radish. Yield: 10 or 12 balls.

How are croquettes made? Croquettes may be made from cooked potatoes, rice, meat, or fish mixtures. The food is shaped into cones or cylinders. Then it is coated with dried bread crumbs and egg. The coating is used to make the food taste good and look good, and to prevent the fat from soaking into the mixture.

RICE CROQUETTES

1 pint cooked rice	3 dashes white pepper
2 or 3 tablespoons milk	Speck cayenne
3 tablespoons butter	2 tablespoons finely chopped parsley
$\frac{1}{2}$ teaspoon salt	1 egg, beaten
Dried bread crumbs and 1 egg for dipping	

Put all the ingredients, except the egg, in the top of a double boiler. Heat over hot water until the mixture is hot. Stir in the egg. Stir and cook until the egg thickens.

Spread the mixture on a plate so it will cool. (Why will this mixture be easier to shape after cooling?) When cool, shape the mixture into cylinders.

Spread some *fine* dried bread crumbs on a plate. On another plate, beat an egg slightly. Add 1 tablespoon of water to it. Dip each cylinder into the crumbs, then into egg, and again into the crumbs. Each croquette will then be covered with 2 coats of crumbs and 1 of egg.

Have the hot fat ready, tested for temperature as suggested on page 296. Put not more than 4 croquettes in a wire basket. Carefully lower the basket into the hot fat. Fry until a golden brown. Remove from fat and drain. Serve at once. Garnish with parsley. Yield: 10 or 12 croquettes.

Variation. — Instead of frying croquettes, you may *bake* them. To do this, butter the dried bread crumbs as directed for scalloped dishes. (See page 280.) Use 3 tablespoons butter with each cup of dried bread

crumbs. Dip the croquettes in egg and buttered bread crumbs. Place them in a shallow pan. Put a few bits of butter on top of the croquettes. Bake in a *hot oven* — 400° F. — for about 30 minutes. Serve hot. Cheese sauce may be served on the croquettes.

How should fat be cared for after frying? After using a kettle of fat for frying it must be saved and made ready for use another time. It needs clarifying first. *To clarify fat*, add a few slices of raw potatoes. Let the fat heat slowly until it stops bubbling. Set aside to cool.

When cool *strain* through a cloth. Let the fat stand until entirely cold. Store in a cool place.

SUMMARY

Salads made of eggs, cheese, fish, or potatoes make good *main luncheon* or *supper dishes*, if a soup or other hot dish is included in the menu.

Salads made of *fruits* may be used instead of *desserts*.

For an *attractive salad*:

1. The lettuce and other materials are crisp, cold, and dry.
2. The salad dressing is added just before serving.

Salad dressings are of two classes:

1. *Uncooked* — French dressing, mayonnaise
2. *Cooked* — dressing thickened with starch

An oil is a fat which is in the liquid state at ordinary temperature.

Oils and fats are *energy- or heat-giving foods*. These foodstuffs give $2\frac{1}{4}$ times as much energy as do carbohydrates.

REVIEW QUESTIONS AND EXERCISES

Each of the following statements is completed in more than one way. Only one is correct. Read each statement carefully and choose the correct word or phrase to complete it. Then copy the statement, including only the correct conclusion.

1. If a salad is used as the main dish of a luncheon or supper, it is important that the menu contain (a) a hot dish (b) a frozen dessert (c) a gelatin dessert.
2. Fats yield (a) 2 times (b) $2\frac{1}{4}$ times (c) $2\frac{1}{2}$ times as much energy as carbohydrates.

3. Olive oil contains more fat than (a) butter (b) cottonseed oil (c) corn oil.
4. French dressing is (a) a cooked salad dressing (b) an uncooked salad dressing.
5. A salad that may serve as a meat substitute is (a) lettuce salad (b) cabbage salad (c) egg salad.
6. Fat hot enough to fry croquettes should brown stale bread in (a) 40 seconds (b) 60 seconds (c) 80 seconds.
7. Oil used in making mayonnaise should be (a) lukewarm (b) hot (c) cold.
8. Fat for frying should be (a) lukewarm (b) as hot as boiling water (c) much hotter than boiling water.
9. To remedy curdled mayonnaise (a) add the curdled dressing gradually to the egg (b) add the egg gradually to the curdled dressing.
10. Fats (a) regulate body processes (b) furnish the body with energy or heat.

HOME WORK

1. Make a list of salads suitable for serving in your home for the main course of luncheon or supper.
2. Prepare salad dressing and at least two salads. If you desire school credit for this work, take to school a report signed as suggested on page 30.

CHAPTER XXIII

BREADS FOR LUNCHEON OR SUPPER

Can you answer these questions? If not, look for the answers as you study this chapter.

1. What gas is produced when baking powder is used for leavening?
2. Housekeepers always use baking soda in a quick bread containing sour milk. Why is the baking soda used? How much should be used with each cup of sour milk?
3. What is *cream meal*?
4. Why is baking powder stored in a tin can rather than in a paste-board box?
5. Give at least two reasons why corn meal is not usually bought in as large amounts as white flour.
6. Why should a loaf of nut bread bake at a lower temperature than muffins?
7. What is the difference between drop baking-powder biscuits and cut baking-powder biscuits?

What breads are suitable for luncheon and supper? You have already learned to make muffins and cinnamon bread. These breads are suitable not only for breakfast but for luncheon or supper. In addition to these there are many other breads leavened with baking powder, which may be served for luncheon or supper. Breads leavened with baking powder or other quickly acting substances are called *quick breads*.

There is the old stand-by, yeast bread, which is good for all meals. From dough leavened with yeast many different kinds of biscuits and rolls may be prepared. For variety, these are desirable for luncheon or supper. Yeast breads and yeast rolls are considered on pages 423 ff.



BAKING-POWDER BISCUITS

2 cups soft wheat or pastry flour

2 or 4 teaspoons baking powder

(See footnote, page 88.)

 $\frac{1}{2}$ teaspoon salt

4 tablespoons butter or other fat

Milk or water — about $\frac{2}{3}$ cup

1. Sift some flour, then measure it. Add the baking powder and salt to the flour. Sift these dry ingredients into a mixing bowl. Add the fat and thoroughly work it into the flour mixture, with (a) two knives, one held in each hand, or (b) a pastry blender.

2. Add the liquid, a small quantity at a time. Mix the liquid and flour mixture by cutting with a knife. Do this quickly and deftly.

3. Place the dough on a slightly floured board. Sprinkle a little flour over the hands, knead the dough lightly with the palm of the hands for about 20 seconds or until the dough is smooth.

4. If necessary, sprinkle more flour on the board. Then with a floured rolling pin pat out the dough lightly until it is about $\frac{1}{2}$ to $\frac{3}{4}$ inch thick. Lift the rolling pin between each pat.

With a floured cutter, cut the biscuits as closely together as possible. Press together the remaining pieces, pat out, and cut. Place the biscuits on a greased pan $\frac{1}{2}$ inch apart. If any dry flour clings to the top of the biscuits, moisten with a little milk.

Bake at 450° F. 12 to 15 minutes. Yield: 12 medium biscuits.

Variation: Drop Biscuits. — After mixing the dry ingredients with the milk, drop the dough into a greased muffin pan. Bake at the same temperature as cut biscuits. A little more liquid may be needed.

Baking-powder biscuits differ from muffins in that they contain no eggs, and in the method of mixing fat with the dry ingredients. Instead of being melted, the fat is left in the solid state and worked into the dry ingredients.

What is baking powder? If some baking soda and corn-starch are mixed together, the soda cannot be distinguished from the cornstarch. Baking powder looks like one kind of finely powdered substance. But it is really a mixture of at least three white powdered substances. When these powdered materials are mixed together, no one can be recognized.

Baking powder is a mixture of (1) baking soda, (2) material having acid properties, and (3) cornstarch.

When baking soda and the acid materials are moistened, a gas is formed. That gas is *carbon dioxide*. If the soda and acid substance are not only moistened but heated, the gas is formed more quickly.

The starch is mixed with the soda and material having acid properties merely to keep these two substances apart, so no gas will form until the baking powder is used.

How do different kinds of baking powder vary? At the grocery store one finds baking powders with different names. If the labels are examined one can see they all contain *sodium bicarbonate*. This is *baking soda*. They all contain starch also. But the substance with acid properties varies in the different baking powders. It is a *phosphate*, a *tartrate*, or an *alum phosphate*. The gas produced by all baking powders, when they are moistened and heated, is carbon dioxide.

Why is baking powder stored in a tin can? The tin can keeps air away from baking powder better than a pasteboard box would. It is necessary to keep air away from it so the moisture of the air will not cause the gas to form while baking powder is in the can. *Keep the lid on the baking-powder box.*

How are sour milk and baking soda used in quick breads? The quick breads you have learned to make were leavened with

baking powder. In these sweet milk was used for moistening. It is convenient and often desirable to use sour milk for moistening a quick bread.

One would not care for quick breads which tasted sour. What can be done to sour milk used in quick breads to remove the tart taste? Housekeepers have found that when the proper quantity of *baking soda* is used with sour milk, its acid taste disappears. Hence, when sour milk is used for moistening a quick bread, baking soda is always added.

Baking soda destroys the sour taste of sour milk, because an interesting change takes place. Let us learn something of what happens when baking soda and sour milk are mixed together.

Experiment 20: *To learn what is formed when sour milk and baking soda are mixed and heated.*

(a) Put a teaspoon of sour milk in a test tube. Add a teaspoon of cold water merely to dilute the milk so you can easily see the changes which will take place. Now add a pinch of baking soda. Do you notice any bubbles forming in the mixture?

(b) Slightly heat the tube. Do you notice bubbles now? Bubbles appearing indicate that a gas is forming.

When sour milk and baking soda are mixed and heated, not only does the sour taste of the milk disappear, but a gas is formed. This gas is the same kind as is formed when baking powder is used for leavening — it is carbon dioxide. A mixture of sour milk and baking soda is used for leavening.

How much baking soda should be used with sour milk? Sometimes breads made with sour milk and baking soda have a bitter taste. The bitter taste is not unlike the taste of baking soda. In fact, the bitter taste is due to the use of more baking soda than is needed. If more baking soda is used than can unite with the acid of the sour milk, there will be a bitter material left in the bread when the baking is completed.

It has been found that *with each cup of sour milk, $\frac{1}{2}$ teaspoon of baking soda should be used.*

Do sour milk and baking soda form enough gas to leaven a bread? The answer to this question is "no." In most breads it is well to add *baking powder along with the sour milk and soda*, so that enough carbon dioxide will be formed to make the mixture porous. How much baking powder shall we add?

If sweet milk is used in a quick bread, the amount of baking powder needed depends upon several factors, one being the kind of baking powder. In general, use less alum phosphate baking powder (often called S. A. S. phosphate baking powder) than tartrate or phosphate baking powder. For most quick breads, the following is enough to leaven 1 cup of flour:

1½ to 2 teaspoons phosphate or tartrate baking powder

1 to 1½ teaspoons alum phosphate baking powder

For some family-size recipes for quick breads containing no eggs or only one, such as baking-powder biscuits, the greater quantity of phosphate or tartrate baking powder will make a more delicate or porous quick bread. Also with whole wheat or other heavy flour or meal the greater quantity of all types of baking powder may be used.

In substituting sour milk for sweet milk, use, as stated previously, *for each cup of fully soured milk ½ teaspoon baking soda*. Then use from $\frac{1}{2}$ to $\frac{3}{4}$ *the amount of baking powder in the sweet milk recipe*. Usually $\frac{1}{2}$ as much baking powder is satisfactory if the quick bread is made with white flour, and $\frac{3}{4}$ as much baking powder if the quick bread is made of coarse flour or meal. For example, if a sweet milk recipe contains 2 cups of flour, 3 teaspoons of baking powder, and 1 cup of sweet milk, to substitute sour milk for sweet, use: 2 cups flour, $\frac{1}{2}$ teaspoon baking soda, 1½ teaspoons baking powder, and 1 cup sour milk.

What are some points in buying corn meal? How is corn bread made? Corn meal is generally used to make corn bread. In some localities one finds at market corn meal that is white or light gray; at other markets yellow corn meal is sold. The

difference is due to different varieties of dried corn from which the meals were made.

There is, however, a greater difference than that of color. Some corn meal is fine-grained and is known as *cream meal*. Such meal is prepared by discarding the outer covering and germ from the kernel and grinding the part of the kernel left. The coarser meal, which may be found at some markets, is prepared by removing only the coarsest part of the outer covering and grinding the remaining portion. The coarser meal has a finer flavor, but it does not keep so well as cream meal. If the coarse meal is used, it should be bought in small quantities. The exact quantity will depend upon how often the meal is used and whether it is bought in the summer or winter. The meal spoils, of course, more readily in the summer.

In making corn bread, sour milk is generally used. Sour milk gives quick breads a better taste and quality than sweet milk. Corn meal is coarser than flour; mixtures containing meals or coarse flours are a little more difficult to make porous than those made with fine flour, so fine flour is generally used with the coarse material. In making corn bread, it is especially necessary to use baking powder in addition to baking soda and sour milk. The recipe follows:

CORN BREAD

2 eggs	1½ cups white flour
1½ cups sour milk	¾ teaspoon baking soda
¾ cup sugar	2 or 4 teaspoons baking powder
3 tablespoons fat	(See footnote, page 88.)
1½ cups corn meal	1½ teaspoons salt

The ingredients are mixed in the same way as muffins. (See page 84.)

When baking soda is used, it should be added to the flour and the other dry ingredients. Sometimes, recipes suggest that baking soda be mixed with the sour milk. This is not advisable because, when sour milk and baking soda are mixed, a gas begins to form. This gas is use-

ful in leavening and should not escape before the baking soda and sour milk are mixed with the other ingredients.

Pour the mixture into a greased pan—a 9-inch square pan is desirable. Bake in a hot oven— 400° F.—for 25 to 30 minutes.

Variation: Corn-Meal Sticks.

— Instead of pouring the mixture into a plain pan, pour it into bread-stick pans. (See Figure 99.) Bake in a hot oven— 400° F.—25 minutes. Serve hot with soups or salads.

Corn Sticks. — Instead of using corn meal, you may add canned corn to a quick-bread mixture. Since the canned corn furnishes some of the moisture, not so much milk is needed.



FIGURE 99. A BREAD-STICK PAN

Breads baked in this pan are a pleasant change. The large amount of crust makes them taste good. The pan should be soaked well before it is washed.

2 eggs

$\frac{3}{4}$ cup sour milk

$\frac{1}{4}$ cup sugar

$\frac{3}{4}$ cup canned corn

$\frac{1}{4}$ cup fat

2 cups flour

$\frac{3}{8}$ teaspoon baking soda

2 or 3 teaspoons baking powder

(See footnote, page 88.)

$\frac{1}{2}$ teaspoon salt

Mix these ingredients in the same way as for muffins. The canned corn should be added after the sugar.

Bake in a hot oven— 400° F.—25 to 30 minutes. Yield: 2 dozen sticks, about 5 inches long.

SOUTHERN SPOON BREAD

2 cups water

$1\frac{1}{4}$ teaspoons salt

1 cup corn meal

2 tablespoons butter or bacon fat

2 eggs

1 cup sour milk

$\frac{1}{2}$ teaspoon baking soda

2 or 3 teaspoons baking powder

(See footnote, page 88.)

Heat the water until it boils. Add the salt. Add the corn meal to the water slowly. Stir and heat until the mixture reaches the boiling point. Continue to cook 5 minutes longer.

Add the butter or bacon fat to the hot corn-meal mixture. Stir until the fat is melted.

Beat the eggs. Add the milk and leavening materials to the eggs. Now add the egg mixture to the corn-meal mixture and mix well.

Pour the batter into a greased 9½-inch pie plate or shallow baking dish. Bake at 400° F. for 45 minutes.

Serve from the dish in which the bread is baked.

Variation: Instead of butter or bacon fat, fat tried out from pork, beef, or chicken may be used in spoon corn bread. Also, the *cracklings* (i.e., the crisp particles strained from tried-out fat) from bacon or other fat may be used along with the fat.

How is nut bread made? A loaf of bread is usually leavened with yeast. However, bread leavened with baking powder may also be baked in a loaf. Because a loaf of bread is so much thicker than corn bread or muffins, it must be baked longer. If the bread is baked for a longer time, the oven must not be so hot. The longer breads are baked, the lower the temperature of the oven must be.

NUT BREAD

1 egg	3 or 4½ teaspoons baking powder
1¼ cups thick sour milk	(See footnote, page 88.)
½ cup sugar	¾ teaspoon baking soda
3 cups pastry or soft wheat flour	1 teaspoon salt
(sift before measuring)	1 cup soft-shelled walnut meats

Sift flour, then measure 3 cups. Add the other dry ingredients to the flour.

Get the nuts ready. They should be coarsely chopped.

Beat the egg in a mixing bowl. Add the sour milk and sugar. Mix.

Sift the dry ingredients into the egg mixture. Add the nuts. Beat until well mixed. Pour into a greased bread pan.

Bake in a moderate oven — 325° F. — for 1 hour or until it is done when tested as directed on page 87.

Variations: *Date or Raisin Bread.* — 1 package (10 ounces) of dates or 1 cup of raisins may be used in place of the nuts. Mix the fruit with the flour mixture.

How is steamed brown bread made? Breads made of coarse flours are often steamed. A longer time is required to steam breads than to bake them.

STEAMED BROWN BREAD

$\frac{1}{4}$ cup sugar	$\frac{3}{4}$ teaspoon salt
$1\frac{1}{2}$ cups sour milk	3 or 4 teaspoons baking powder
$\frac{1}{2}$ cup molasses	(See footnote, page 88.)
$1\frac{3}{4}$ cups Graham flour	1 teaspoon baking soda
$\frac{3}{4}$ cup corn meal	$\frac{1}{2}$ cup seeded raisins

Put the sugar, sour milk, and molasses into a mixing bowl and mix. Mix the dry ingredients and the raisins. Pour them into the milk mixture. Beat until well mixed.

Grease three 1-pound baking-powder cans or other molds. Pour the mixture into the cans, filling them about $\frac{2}{3}$ full. Put the covers on the cans.

Place the molds in a steamer or in a kettle containing a rack. If the kettle is used, pour water around the molds so that it comes halfway to the top of the molds. As the water evaporates, add more boiling water.

Let the bread steam for at least 2 hours. After steaming, take the bread from the molds. Place the loaves on a pie pan and let them dry in the oven for a few minutes.

SUMMARY

Baking powder contains:

1. Baking soda
2. Starch
3. Substance with acid properties, either a phosphate, a tartrate, or an alum phosphate (S. A. S. phosphate)

Leavening agents for quick breads:

1. Baking powder
2. Baking soda with sour milk

The gas produced by these leavening agents is *carbon dioxide*.

Proportions of leavening agents to use:

Phosphate and tartrate baking powder:

$1\frac{1}{2}$ to 2 teaspoons to each cup flour

Alum phosphate (S. A. S. phosphate) baking powder:

1 to $1\frac{1}{2}$ teaspoons to each cup flour

$\frac{1}{2}$ teaspoon baking soda with each cup sour milk

To *substitute sour milk for sweet milk* in a quick bread :

1. Use $\frac{1}{2}$ teaspoon soda for each cup sour milk.
2. Use from $\frac{1}{2}$ to $\frac{3}{4}$ the amount of baking powder in the sweet milk recipe : $\frac{1}{2}$ the amount in a white flour quick bread ; $\frac{3}{4}$ the amount in a coarse flour quick bread.

REVIEW QUESTIONS AND EXERCISES

1. Turn to page 88 for the muffin recipe. Write a recipe for plain muffins, using sour milk instead of sweet milk.
2. Find the recipe for cinnamon bread on page 89. Write a recipe for cinnamon bread, using sour milk instead of sweet milk.
3. A recipe for brown bread contains $2\frac{1}{2}$ cups sour milk. How much baking soda should be included in the recipe?
4. Why does not coarse corn meal keep as well as fine or cream corn meal?
5. What causes a bitter taste in some quick breads containing soda?
6. Why does not a properly made quick bread containing sour milk taste sour?
7. Why does not a properly made quick bread containing baking soda taste bitter?
8. Why is starch put into baking powder?
9. What two substances are contained in all baking powders?
10. What is the principal difference in the mixing of muffins and baking-powder biscuits?

HOME WORK

1. Prepare at least two quick breads during the week. If you want school credit for this work, bring a signed statement as suggested on page 30.
 2. Read the label on your baking-powder can. Does your baking powder contain baking soda? How do you know? What substance other than baking soda and starch does the baking powder contain?
- Discuss the kinds of baking powders you find in your home and at school.

CHAPTER XXIV

LUNCHEON OR SUPPER DESSERTS

Can you answer these questions? If not, look for the answers as you study this chapter.

1. What do custards contain? Give at least two reasons why custards are wholesome desserts.

2. What makes a custard curdle? How may a curdled custard be remedied?

3. If you desire to use lemon peel for flavoring, how much of the rind should be grated? Why?

4. Why should we not eat desserts at the beginning of a meal?

5. What is floating island? Why is it so named?

6. What is meant by *shortening*?

7. How can a baking-powder biscuit dough be changed so as to make a shortcake dough?

8. What material is added to breads or cakes containing molasses? For what two purposes is it added?

9. Why are pies more suitable desserts for luncheon or supper than for a hearty dinner?

10. What makes pie crust tough?

Why are desserts served at the close of a meal? Little children sometimes want to eat the dessert of a meal first. If they are allowed to do so, the other foods of a meal which they need for complete nourishment are often left half eaten or even untasted. A sweet food such as pudding or cake eaten at the beginning of a meal is apt to *deadens the appetite*.

There is another reason why it is not a good practice to eat sweets first at a meal. As stated on page 224, a sweet food, especially one containing *much* sugar, irritates an empty stomach. If a sweet is eaten at the close of a meal, it is mixed with

the foods which are already in the stomach. For this reason a *small portion* of a sweet dessert does little or no harm to the stomach.

Why are fruits wholesome desserts? All fruits contain some sugar. To be sure they contain acids also. But fruits such as figs, dates, raisins, and bananas contain so much sugar and so little acid that they have a decidedly sweet taste. When we cook apples, peaches, and other fruits, we invariably add sugar. When we serve sliced oranges or strawberries, sugar is usually added. Not only, then, does fruit contain sugar, but sugar is often added in serving it. We have already learned how valuable and necessary fruit is. A good way to get the fruit we need to make us healthy is to use it as dessert.

What are some desserts made of fruit? *Brown Betty* is a very appetizing dessert. It is made by adding spices and sugar to apples, placing alternate layers of the apple mixture and bread crumbs in a dish, and baking. Brown Betty is sometimes called *scalloped apples*.

BROWN BETTY

2 cups soft bread crumbs	$\frac{1}{4}$ teaspoon cinnamon
2 tablespoons butter	$\frac{1}{2}$ teaspoon nutmeg
3 cups apples, chopped or cut into bits	$\frac{1}{4}$ cup water
$\frac{1}{2}$ cup sugar	$\frac{1}{2}$ lemon — juice and grated rind ¹

Butter the bread crumbs as directed on page 280.

Wash, pare, and core the apples and chop or cut them into small pieces. Add the remaining ingredients to the apples.

Divide the bread crumbs into 3 parts and the apple mixture into 2 parts as directed for scalloped corn, page 280. Place these ingredients in layers in a buttered baking dish.

Bake in a *moderate oven* — 375° F. — for 40 to 60 minutes or until the apples are tender and the crumbs brown. Cover the dish during the first 20 minutes of baking. Serve hot with hard sauce or with cream.

¹ Care should be taken in *grating lemon rind* not to grate the portion underneath the colored part. Only the thin yellow portion should be used as flavoring.

HARD SAUCE

$\frac{1}{2}$ cup butter 1 cup powdered sugar
1 teaspoon vanilla

Cream the butter. Add the sugar gradually and continue to cream the mixture. Add the vanilla. Mix.

Chill the sauce. Use it on *hot* desserts.

Fruit cup, i.e., a mixture of uncooked fruits such as oranges, pineapple, and watermelon sliced or cut into small pieces and sugared, as well as canned fruits, makes a good dessert. Oranges and grapefruit sliced and sweetened have a finer flavor than either fruit used alone.

Sometimes a mixture of fruits is used as the first course of a meal instead of soup. The acid of oranges and other fruits makes the dish a good appetizer. When a mixture of fruits is used for the first course, care should be taken not to add too much sugar.

In making a fruit cup, seasonable fresh fruits or canned fruits may be used. A combination of fruits containing either fresh or canned pineapple may be prepared at most seasons of the year as follows:

FRUIT CUP

4 slices canned pineapple or	1 grapefruit or 1 cup Tokay grapes
1 cup fresh pineapple	or canned cherries
2 oranges	$\frac{1}{2}$ cup sugar

If sliced, canned, or fresh pineapple is used, cut it into small pieces.

Pare the oranges and grapefruit, removing the tough, bitter membrane that incloses the pulp. Cut the pulp into small pieces. If grapes are used, cut them in halves and remove seeds.

Mix the fruit and sugar. Cover and put in a cold place. If this dessert is kept in a cool place, it is not harmed by standing several hours. When ready for serving, place in sherbet glasses.

Sometimes a *maraschino cherry* is used as a *garnish* for each serving. A less expensive and quite as effective garnish may be prepared by reserving $\frac{1}{2}$ slice of pineapple and coloring it as follows: Place the half slice on a saucer and sprinkle it generously with red sugar. Turn it

over and sprinkle sugar on the other side. Soon the sugar will dissolve in the pineapple juice and tint the pineapple. Cut the tinted pineapple in 6 pieces. When just ready to serve, place a piece on top of the fruit in each cup. Fresh *strawberries* or *blackberries* make a pleasing garnish.

What are some inexpensive desserts containing milk? The principal ingredients of a dessert called *blancmange* are *milk*, *cornstarch*, and *sugar*. The cornstarch *thickens* the milk; the sugar *sweetens* it.

When we learned to thicken milk with flour in making white sauce, we found by experimenting that we must mix the flour with butter or with cold water before adding it to a hot liquid. (See Experiments 14 and 15, page 236.) In the recipe for *blancmange* there is no butter, so we cannot use the method followed in making white sauce. We could mix cornstarch with some cold milk. There is, however, another more satisfactory way of making *blancmange*. Let us see:

Experiment 21: *To show what happens when flour is mixed with sugar before it is added to a hot liquid.*

(a) Into a small saucepan, put 1 teaspoon of flour and 2 teaspoons of sugar. Mix thoroughly. Add $\frac{1}{4}$ cup boiling water. Stir and heat until the mixture thickens. Is the mixture smooth?

(b) If a recipe for a sauce thickened with flour contained no butter, but contained sugar, how would you mix the ingredients so as to obtain a smooth sauce?

BLANCMANGE

2 cups milk

$\frac{1}{4}$ cup cornstarch

$\frac{1}{4}$ cup sugar

1 teaspoon vanilla

$\frac{1}{16}$ teaspoon nutmeg

$\frac{1}{5}$ teaspoon salt

Scald the milk in a double boiler.

In a bowl, mix well the cornstarch and sugar. Add the hot milk to this mixture, stirring as you pour the milk. Pour the mixture into the double boiler. Note the time. Stir and cook over hot water. Stir constantly until the mixture thickens. Then cover. The pudding should cook for 30 minutes.

Remove from the stove. Add the flavoring and salt. Stir to mix.

Rinse out cups or molds with cold water. Pour the pudding into the molds. Set aside to cool. It is not ready to serve until the mixture is stiff.

When ready to serve, turn from the mold. Serve with sugar and cream or with sliced peaches or other fruit. Yield: *5 medium servings.*

Variation. — A *chocolate cornstarch pudding* may be made by adding either cocoa or chocolate to the mixture.

If *cocoa* is used, *3 tablespoons* will be needed; *increase the sugar to $\frac{3}{8}$ cup.* (Chocolate-flavored desserts require more sugar than those flavored with vanilla or spice.) Mix the cocoa with the cornstarch and sugar. Then proceed as in making plain blancmange. Add only $\frac{1}{2}$ *teaspoon of vanilla* and no nutmeg. Mold. Serve with cream.

If *chocolate* is used, the sugar should be increased to $\frac{3}{8}$ of a cup. Mix and cook the sugar, cornstarch, and milk as for the plain dessert. Cut into pieces *1 square (i.e., 1 ounce)* of bitter chocolate. Put it in a very small saucepan. Add $\frac{1}{4}$ cup of water. Stir and heat the mixture over a low flame until it is smooth. Add this chocolate mixture to the cornstarch just before taking from the stove. Mix well. Remove from the flame. Then add salt and $\frac{1}{2}$ teaspoon of vanilla. Mold. Serve with cream.

Why are custards wholesome desserts? From all you have learned about the value of milk and eggs as foods, you will realize that a food made chiefly of milk and eggs must be wholesome. Custard is such a food. To the milk and eggs used in custard making, there is added a *small quantity* of sugar. Less sugar is used in making a plain custard than in making most other desserts. The small quantity of sugar is an advantage. Too much sugar irritates the stomach, as has been explained on page 224.

Custards are so wholesome that children and invalids may eat them. They are among the most wholesome desserts for young persons as well as for those who are not so young.

There are many delightful dishes made by using a custard as the basis and adding different foods and flavoring. Let us learn how to make custards.

How are custards made? We learned that eggs are cooked best at a temperature lower than that of boiling water. Milk

scorches readily when cooked directly over the flame. Milk and egg mixtures or custards should be cooked over hot water or in a double boiler.

When a custard is cooked just right, the egg is really soft-cooked. Of course a custard does not look like a soft-cooked egg because the egg is mixed with the milk. The custard has a creamy appearance. The particles of egg exist in a jelly-like condition through the milk.

Sometimes one is unfortunate enough to overcook a custard. When this is the case the custard *curdles*. That is, the egg particles form lumps. The egg proteins shrink and separate from the liquid. It is usually possible to *remedy a curdled custard*. To do this, work quickly:

1. *Stop the cooking at once* — replace the hot water in the lower part of the double boiler with cold water and set the pan containing the custard in it.

2. Immediately *beat* the custard, using a wheel egg beater.

There are several ways of cooking a plain custard. It may be cooked in a steamer, in the oven, or in a double boiler. No matter how it is cooked, the method of mixing is the same. This is described on the following page. The methods of cooking the custard in a *steamer*, *oven*, and *double boiler* are also given. Custard cooked in a double boiler is *soft* or *stirred custard*.

How is soft custard used? With soft custard many wholesome and tasty desserts may be made. As stated on page 56, it may be used as a sauce and poured over cooked rice. This makes a delicious *rice pudding*. Another palatable pudding may be made by pouring it over *cake*. A very good way to make stale cake taste good is to soften it with custard. Using soft custard rather than cream over sliced bananas or peaches makes a good dessert.

How can we save eggs in making custard? We have learned that eggs will thicken milk. Flour also will thicken milk. When eggs are high in price, it may be a good plan to use flour

PLAIN CUSTARD

- 1 pint milk
- 2 eggs or 3 egg yolks
- $\frac{1}{8}$ teaspoon salt
- $\frac{1}{4}$ cup sugar
- $\frac{1}{2}$ teaspoon vanilla or dash nutmeg

1. Heat the milk in a double boiler. In a bowl, break the eggs. Add the salt. Beat the eggs enough to mix readily with the other ingredients. Then add the sugar and mix.

Pour the hot milk *slowly* (stir while pouring) into the bowl containing the egg mixture.

Custard mixed in this way may be cooked by *steaming, baking, or stirring* in a double boiler. If steamed or baked add the vanilla *before* cooking. If cooked in a double boiler, add the vanilla *after* cooking and cooling. Add the nutmeg *before* cooking.

2. To *steam the custard*, pour into 6 individual custard cups or into one bowl. Place the cups in a steamer. Cover. Let the water in the bottom of the steamer *boil gently*. Cook the custard *without stirring*.

To *test for sufficient cooking*, insert a knife into the custard. If it comes out clean the custard is done. Remove from the steamer *at once*. Set aside to cool.

3. To *bake custard*, pour into cups or bowl. Place the cups in a pan. Pour a small amount of hot water around the cups. Bake at 350° F. for 30 to 35 minutes or until a knife comes out clean when inserted in the custard.

4. To *cook a stirred or soft custard*, pour the mixture into the double boiler in which the milk was scalded. Cook over *gently boiling* water, *stirring constantly* until the mixture is slightly thickened and forms a thin coating over the bowl of the stirring spoon. *Immediately* remove the top part of the double boiler and set it aside to cool. Then add vanilla.



instead of eggs in making custard. We can substitute flour for one egg, but not for both. If no eggs were used, the mixture would neither look nor taste like a custard. We must use at least one egg. Of course flour does not have the same kind of nourishing properties as do eggs. A custard thickened with flour and egg will differ in food value from one thickened only with eggs. We can, however, make a custard that tastes good by using a combination of flour and eggs.

CUSTARD THICKENED WITH FLOUR AND EGG

Follow the recipe for plain custard, using *1 egg* and *2 tablespoons flour*. Mix the flour and sugar. Add the hot milk and cook in the same way as blancmange. Beat the egg, add the salt. Pour some of the hot milk mixture over the egg. Pour into the double boiler. Then proceed as in making custard thickened with eggs only.

How is floating island made? Can you imagine islands of beaten egg white floating on a lake of golden custard? What makes the islands float? This you can readily answer when you remember that air is inclosed in beaten eggs. Air, as you know, is very light and much of it is distributed through the beaten egg white. Let us learn how to make this kind of custard:

FLOATING ISLAND

1 pint milk	$\frac{1}{8}$ teaspoon salt
3 egg yolks	$\frac{1}{4}$ cup sugar
	$\frac{1}{2}$ teaspoon vanilla

Mix and cook these ingredients as directed for soft custard (page 317).

Egg whites beaten and sweetened are called meringue (pronounced mē-răng'). Meringues are used on the tops of pies, puddings, and other desserts.

3 egg whites	Pinch salt
3 tablespoons sugar	

Put the egg whites in a bowl. Add the salt. Beat with a wheel egg beater until stiff. Add the sugar — granulated or powdered may be

used. Continue beating only long enough to mix the sugar with the egg white.

When the custard has cooled, add the vanilla. Pour the custard into sherbet glasses or into a large serving dish. With a tablespoon drop the meringue on top of the custard.

The meringue looks attractive and tastes better to some persons if it is browned slightly. *To brown the meringue*, place the serving cups or dish in the broiling oven. Let remain until the surface is slightly browned.

A bit of jelly may be used as a *garnish* on the top of each meringue island. Chill. Serve cold. Yield: 6 servings.

How are fruit shortcakes made? Have you ever heard housekeepers speak of *shortening*? Shortening is a fat. Often in recipes the term "shortening" is used. Butter, lard, or one of the substitutes for these fats is commonly used as shortening.

Fat in a quick bread makes the bread more crisp or tender. A quick bread with much fat in it is so tender or *short* that it breaks readily. A shortcake is a cake containing enough fat to make it tender.

If you know how to make drop biscuits (see page 302), it is very easy for you to learn how to make one kind of shortcake. Merely add more fat and a little sugar to plain biscuit dough to make the foundation for a shortcake.

FRUIT SHORTCAKE

Use the recipe for baking-powder biscuits (see page 302), making the following changes:

Increase the fat to $\frac{1}{3}$ cup.

Add $\frac{1}{4}$ cup of sugar to the dry ingredients.

Place half of the mixture in a greased cake pan or in greased muffin pans. Spread the mixture in the pans so it is somewhat smooth. Then spread the surface with a very thin layer of softened butter.

Put the remainder of the dough on top of the buttered layer.

Bake in a *quick oven* — 450° F. — for 20 minutes or until the cake is browned and has shrunk from the sides of the pan.

Remove from the pan and place on a cake cooler for a few minutes.

Split the cake open, using a fork, and place crushed and sweetened fruit between the layers. The top of the cake may be covered with (1) sweetened and crushed fruit, (2) whipped cream garnished with uncrushed fruit, or (3) meringue garnished with uncrushed fruit. (Serve with soft custard sauce; see page 317.)

Strawberries are a favorite fruit for shortcakes. About $\frac{1}{2}$ cup of sugar is needed to sweeten 1 quart of strawberries.

Peaches, fresh or canned, make a good shortcake. This fruit may be served with whipped cream or with custard sauce.

If *whipped cream* is used it should be sweetened and flavored. Use: $\frac{1}{2}$ pint of whipping cream, a speck of salt, $\frac{1}{4}$ cup of powdered sugar, and $\frac{1}{2}$ teaspoon of vanilla. (Directions for whipping cream are given on page 443.)

How is gingerbread made? How does molasses aid in leavening? As you perhaps know, gingerbread is not bread, that is, it is not the kind of bread we eat with meat and vegetables. Gingerbread is cake, flavored with ginger.

Although gingerbread and muffins are not much alike in many ways, the methods of making them are quite similar. Indeed, if you can make good muffins, you should be able, with the aid of a reliable recipe, to make good gingerbread.

Gingerbread is dark in color because it contains molasses and spices. Molasses helps not only to color the cake, but to sweeten it. However, a more pleasing flavor can be obtained by using a combination of molasses and white sugar for sweetening.

Molasses contains a small quantity of acid. Because of this fact we generally add baking soda to counteract the effect of acid, as in quick breads. Sour milk also is commonly used in gingerbread. Enough baking soda is added to counteract the acid not only of the molasses but of the sour milk. *For each cup of molasses, $\frac{1}{2}$ teaspoon of baking soda should be used.* Molasses and baking soda aid in leavening to a slight degree.

GINGERBREAD

1 egg	$\frac{3}{4}$ teaspoon baking soda
$\frac{1}{2}$ cup granulated sugar	$\frac{1}{2}$ teaspoon salt
$\frac{1}{2}$ cup molasses	$\frac{3}{4}$ teaspoon ginger
1 cup sour milk	1 teaspoon cinnamon
$\frac{1}{4}$ cup fat	$\frac{1}{2}$ teaspoon nutmeg
2 cups soft wheat or pastry flour	2 teaspoons baking powder

Sift some flour; then measure it. Add the leavening and spices.

In a mixing bowl, beat the egg. Add the sugar, molasses, and sour milk, and mix well. Melt the fat; add it to the egg mixture.

Add the dry ingredients to the egg mixture, passing them through a sifter while adding them. Beat until all ingredients are well mixed. Pour into a greased pan. A 9-inch square pan is suitable for this recipe. Bake in a *moderate oven* — 350° F. — for 35 to 40 minutes or until the cake is sufficiently baked. (See tests for sufficient baking of a quick bread, page 90.) Yield: 16 pieces, about 2 inches square.

Serving Gingerbread. — The flavor of gingerbread goes well with that of *apples*. A dish of hot apple sauce or a baked apple with a piece of gingerbread makes a wholesome dessert.

Whipped cream is good with gingerbread. A piece of fresh gingerbread with a spoonful of whipped cream on top of it makes a dessert that is pleasing both in appearance and taste.

Should pie be served for luncheon or for dinner? Pie is often served at the close of dinner. If the dinner has been a hearty one, the average two-crust pie is not a wise choice. Good pie crust contains much fat. It is a rich food, and is not suitable for the dessert of an elaborate dinner. It is better to serve pie at the close of a lighter meal, *i.e.*, as the dessert of luncheon or supper.

What is good pastry? You have perhaps seen pie crust that was crisp and tender. You may have seen crust also that was moist and pasty. Crisp, tender pie crust not only tastes better, but is believed to be more readily digested than soggy crust. Since pie is a slowly digested food, it should be of good quality. Good pastry is tender and flaky.

How is pastry made? Only a few ingredients are used in making pie crust — flour, fat, salt, and water. Sometimes baking powder is added. It is important to use the correct proportion of ingredients. It is also important to mix the ingredients deftly and to bake the dough at the proper temperature.

To make pie crust tender, use *considerable fat* and *very little water*. Failure in making pie crust is often due to adding too much water. In mixing pie dough, try to make every spoonful of water moisten as much dough as possible.

To make pie crust flaky, mix the flour and fat so that they will form layers. To do this, do not melt the fat as is done in making muffins, but cut the solid fat into the dry ingredients. The fat should be left in pieces. When the moistened flour with bits of solid fat mixed through it is rolled out, layers of flour and fat are formed.

To make pie crust light, all materials should be cold. Use ice water. Pie dough is often placed in a refrigerator to chill before rolling it out. When the cold pie crust is put in a hot oven, the cold materials expand and the crust is thus made light. A little baking powder added to the flour also helps to make pastry light. A recipe for pastry is:

PLAIN PASTRY

1½ cups soft wheat or pastry flour	⅓ to ½ cup solid fat
1 teaspoon baking powder	4 or 5 tablespoons ice water
½ teaspoon salt	

Sift some flour; then measure it. Pour the flour into a sifter. Add the baking powder and salt. Sift the dry ingredients into a mixing bowl.

The greater quantity of fat will produce a more tender crust than the smaller amount. However, some persons who have become very skillful in making pastry can make a desirable crust with the smaller quantity of fat.

Add the fat to the dry ingredients. With two knives, cut the fat into

the dry ingredients. But do not cut it in thoroughly. Leave the fat in bits about $\frac{1}{8}$ inch in diameter.

One of the most important parts of making pastry is mixing the water with the other ingredients. Add only part of the water at one time. Try to moisten as much flour as possible with each spoonful of water. Mix the water with the other ingredients by means of a knife. It is well not to touch the dough with the hands any more than is necessary.

When all the flour is moistened, the pastry may be rolled out or it may be placed in the refrigerator or other cold place to chill. *Roll out only enough dough for one crust at a time.* Place the dough on a slightly floured board and roll with a rolling pin. Lift the rolling pin at the end of each stroke. Roll the dough in such direction as to make it of proper shape to fit the pan.

How is pastry for one-crust pie placed in the pan? Some pies have only one crust. The one crust is usually the under crust. If a one-crust pie has a cooked filling such as a lemon custard, the pie crust should be baked before the filling is added. There are two ways of doing this: (1) the pan may be placed right side up and the rolled-out pie dough placed *inside the pan*; a second pan may be laid on top of the crust to keep it even during baking; (2) the pan may be inverted and the rolled-out pie dough placed on the *outside of the pan*. After the pastry is baked, it is taken from the pan, the pan turned right side up, and the baked pastry placed inside the pan.

It is believed there is an advantage in baking pie crust on the outside of a pan. During baking, pie crust shrinks. Placing the crust on the outside of the pan makes the crust larger than when placed on the inside of the pan.

The disadvantage of baking pie crust on the outside of a pan is that very tender crust may break when it is transferred from the outside to the inside of the pan.

If a filling is not cooked before it is added to the crust, the filling and pie crust are baked together. When this is the case, the pie crust must be placed inside the pan. Whether the crust is placed on the outside or inside of a pan, it should be

pricked with a fork before baking or before adding the filling. If this is not done, blisters may form in the crust.

After placing the crust on the pan, trim the edges. Flute the edges if you like.

Bake a pie crust containing no filling in a hot oven — 475° F. — 12 to 15 minutes.

Pie crust baked before the filling is added is usually crisper and drier than that baked with the filling. Such pie crust is believed to be more readily digested than the moister crust. It is advisable for a beginner to make a one-crust pie the crust of which is baked before adding the filling, rather than a one-crust pie baked with the filling or a two-crust pie.

Meringue is often placed on the top of one-crust pie and then browned in the oven.

BUTTERSCOTCH PIE

1 pint milk	2 egg yolks
1 cup medium brown sugar	$\frac{1}{2}$ teaspoon salt
2 tablespoons cornstarch	3 tablespoons butter
2 tablespoons flour	$\frac{1}{2}$ teaspoon vanilla

In a double boiler, heat the milk. In a bowl, mix well the sugar, cornstarch, and flour. Add the hot milk to the sugar mixture, stirring as it is added.

Pour the mixture into the double boiler. Stir and cook until the mixture thickens. Cover and let cook about 15 minutes longer.

Beat the eggs and add the salt. Stir this quickly into the milk mixture. Add the butter. Stir and cook until the egg thickens. Add the vanilla.

Pour into a baked crust. Cover with the following meringue:

2 egg whites	2 tablespoons medium brown sugar
$\frac{1}{8}$ teaspoon salt	$\frac{1}{2}$ teaspoon vanilla

Add the salt to the egg whites. With a wheel egg beater, beat the whites stiff. Add the sugar and vanilla. Cut and fold the sugar into the whites. Spread on the top of the butterscotch filling.

Place the pie in the oven. Bake in a *moderate oven* — 300° F. — for 15 to 20 minutes. Let the pie cool before serving.

SWEET POTATO PIE

2 cups cooked, mashed sweet potatoes (4 medium)	1 teaspoon allspice
3 tablespoons butter	2 eggs
$\frac{7}{8}$ cup sugar	$\frac{1}{2}$ teaspoon salt
1 teaspoon cinnamon	1 cup milk
	$\frac{1}{2}$ teaspoon vanilla

Add the butter, sugar, and spices to the hot potatoes. Separate the eggs. Beat the egg-yolks. Add the yolks, salt, milk, and vanilla to the potato mixture. Fold in the beaten egg-whites.

Pour in a pie dish lined with *unbaked* pastry. Bake at $375^{\circ} F.$ — for 1 hour. When cool serve with whipped cream.

How is the quality of pie judged? The quality of a pie may be judged and recorded on a score card.

SCORE CARD FOR PIE

	PERFECT SCORE
Appearance — color, thickness	10
Crust: Tenderness	20
Lightness	10
Flakiness	10
Flavor	20
Filling: Flavor	20
Consistency	<u>10</u>
Total	100

SUMMARY

Some wholesome desserts made of:

1. Fruits — Brown Betty
2. Milk — blanchmange
3. Milk and eggs — steamed, baked, or soft custards

Some hearty desserts: 1. Fruit shortcakes; 2. Gingerbread; 3. Pie.

A *hearty dessert* is suitable for *luncheon* or *supper* because they are simpler meals than dinner.

Good pastry is: 1. Tender (use much fat, little water)

2. Flaky (mix so as to form layers of fat and flour)

3. Light (have ingredients cold so they will expand when heated; use baking powder)

REVIEW QUESTIONS AND EXERCISES

Copy the following statements, filling in each blank with a word or number:

1. Desserts made of — and — are especially wholesome.
2. In making a sweet sauce thickened with flour, the flour should be mixed with — before adding the hot liquid.
3. When a dessert is flavored with chocolate, more — needs to be used than with other flavoring materials.
4. Custards contain less — than many other desserts.
5. Eggs add food value, color, and flavor to a custard, and also — it.
6. For each cup of molasses used in making gingerbread and other baked mixtures — — baking soda should be used.
7. To make pie crust tender, use much — and little —.
8. Heavy desserts such as pie and fruit shortcake are more suitable for — than for —.
9. Good pie crust should be —, —, and —.
10. Pie crust can be rolled out more easily if it is — after mixing.

HOME WORK

1. Of all kinds of cooking many girls enjoy best the making of desserts. The rosy apple compote which you learned to make when studying about fruits for breakfast (see page 26) would be suitable for a dessert. In preparing this fruit for a dessert, use 1 cup sugar instead of $\frac{1}{2}$ cup. After taking the apples from the sirup, cook the sirup a little longer to make it thicker. When the apples and sirup are cooled, put them in glass or other serving dishes.

To vary it, fill the center of each apple after cooking with *pineapple* cut into bits, or *raisins*, or *chopped nuts*. Whipped cream may be served on top of each apple.

2. Make a list of desserts suitable for a week's serving in your home for the noon or evening meal.

3. Prepare at least two desserts during the week. (If you desire school credit, take a report to school signed as indicated on page 30.)

CHAPTER XXV

LUNCHEON OR SUPPER MENUS — COUNTING CALORIES — SERVING LUNCHEON OR SUPPER

Can you answer these questions? If not, look for the answers as you study this chapter.

1. At what hour of the day is luncheon served? supper?
2. When should the heaviest meal of the day be eaten?
3. What is a calorie? Why is it important that we be able to count calories?
4. How many foodstuffs are there? Name them.
5. If you are getting a meal, what must you keep in mind in order to have all foods ready to serve at the proper time?
6. How can you test a menu to find out whether its foods will keep the body in a healthy condition?
7. What styles of serving may be used in the home where there is no maid?
8. Should soup be placed on the table before the guests are seated?
9. Should salad dressing be passed at the dining table or added to the salad before the salad is placed on the table?
10. Should the soup spoon or teaspoon be placed next to the knife?

Shall we plan a light or a heavy luncheon or supper? Are you accustomed to eat a light or a heavy breakfast? If very little is eaten for breakfast, more may be needed at lunch time. On the other hand, if a hearty breakfast is eaten, a light lunch would perhaps be better.

We are assuming that there will be a heavier meal in the evening. Those who are busy the entire day have the day's work only half over at noon. Such persons find that too heavy a meal is not best at noon when the afternoon is to be spent in hard work. The plan of having the heartiest meal in the evening

is very desirable for some, but not for all. Young children should have their heaviest meal at noon. In case the hearty meal is eaten at noon, the evening meal is called *supper*. In order to be able to plan any type of luncheon or supper that may be needed let us study several plans.

PLAN I	PLAN II	PLAN III
Soup or Hot Main Dish	Soup	Hot Main Dish
Bread and Butter	Main Dish Salad	Vegetable
Salad or Dessert (or both)	Bread and Butter	Bread and Butter
Beverage	Dessert	Salad or Dessert
	Beverage	Beverage

When you were studying about selecting your lunch at the school cafeteria, it was suggested that soup, vegetables, whole-wheat bread and butter, fruit, and milk or cocoa would make a wholesome lunch. Following Plan I, state how milk, fruit, and vegetables may be used. Do the same for Plans II and III. Plan three luncheons or suppers suitable for yourself, following the three plans given in the foregoing.

What is a calorie? How many do you need daily? Do you weigh what you should? If you are under or over weight it may mean that you are eating too little or too much food. How shall we measure the food we eat to find out whether we are eating the right amount? One way is to *count calories*. What are calories? Let us find out:

We have learned that three of the nourishing substances found in foods — carbohydrates, fats, and proteins — oxidize or “burn” in the body; they give us energy or heat. These materials in our foods are valuable in part because they give us energy and make us warm. The amount of heat any food gives to the body is measured in calories. *The calorie measures quantity of heat.* Just as one inch measures a certain length and one pound measures a certain weight, the calorie measures a certain amount of heat.

Imagine a pint of water in a saucepan. The temperature of

Luncheon or Supper Menus — Calories 329

the water we shall suppose is 60° F. Then think of this pint of water being placed on a burner and heated until its temperature is 64° F. About 1 calorie of heat would have been applied to the water. *A calorie may be defined as the quantity of heat required to raise 1 pint (or pound) of water about 4 degrees F.*

From the following table you can learn how many calories the food you eat each day should yield:¹

AGE IN YEARS	CALORIES EACH DAY	
	Boys	Girls
Under 2	900-1200	900-1200
2-3	1000-1300	980-1280
3-4	1100-1400	1060-1360
4-5	1200-1500	1140-1440
5-6	1300-1600	1220-1520
6-7	1400-1700	1300-1600
7-8	1500-1800	1380-1680
8-9	1600-1900	1460-1760
9-10	1700-2000	1550-1850
10-11	1900-2200	1650-1950
11-12	2100-2400	1750-2050
12-13	2300-2700	1850-2150
13-14	2500-2900	1950-2250
14-15	2600-3100	2050-2350
15-16	2700-3300	2150-2450
16-17	2700-3400	2250-2550

How can you count your calories? Scientists have realized how important it is to know what food does when it is in the body. They have done some very careful experimenting with delicate apparatus to find how many calories foods yield. The number of calories that one serving of a food will produce has been estimated from the scientific experimenting. For example:

¹ From *Food Allowances for Healthy Children* by L. H. Gillett, by the courtesy of the New York Association for Improving the Condition of the Poor.

$\frac{1}{2}$ pint whole milk (8.5 oz.)	170 calories
$\frac{5}{8}$ cup cooked spinach (5.2 oz.)	25 calories
1 medium orange (7.1 oz.)	75 calories
1 slice white bread ($3 \times 3\frac{1}{2} \times \frac{1}{2}$ in.) (.7 oz.)	50 calories
1 slice Graham bread ($3\frac{1}{4} \times 2 \times \frac{3}{8}$ in.) (.5 oz.)	33 calories
1 pat or 1 tablespoon butter (.5 oz.)	100 calories

The calories produced by one serving each of foods commonly eaten are arranged in a table in the appendix, pages 600-609. Refer to the table often as you plan meals and study about foods.

A luncheon menu, according to Plan I, page 328, is:

Baked Beans
Graham Bread and Butter
Cabbage Salad
Banana
Milk

Looking up these items in the appendix table we find:

	TOTAL CALORIES	CALORIES FROM PROTEINS	VITAMINS			
			A	B	C	G ¹
Beans, navy, $\frac{1}{2}$ cup, 3.5 oz.	125	32	+	++	*	+
Graham bread, 2 slices, 1 oz.	66	10	+	+++	?	+
Butter, 1 pat, .5 oz.	100	1	+++	-	-	-
Cabbage, raw, $\frac{1}{2}$ cup, 1.1 oz.	10	2	+	++	+++	++
Cottonseed oil, 1 tablespoon, .4 oz.	100	-	?	-	-	-
Banana, 1 medium, 4.1 oz.	75	4	+ to ++	+ to ++	++	++
Milk, whole, $\frac{1}{2}$ pint, 8.5 oz.	170	34	+++	++	+	+++
Total	646	83				

(¹ See page 600.)

Whether this luncheon produces the proper number of total calories for you will depend upon your age and what you eat for the two other meals.

Do calories give a complete measure of the value of foods? Foodstuffs that "burn" or oxidize in the body can be measured in calories. Therefore, the value of carbohydrates, fats, and proteins can be measured by calories.

We know that mineral matter, vitamins, and water are neces-

sary for health. But we cannot measure these foodstuffs by means of calories. Hence calories do not tell us all about the value of a food. But they do tell us much that we need to know.

In learning about the value of a food we need to know especially:

1. How many calories it yields
2. What vitamins it contains
3. What minerals it contains, and especially whether it contains iron, phosphorus, or calcium

By turning to the table on pages 600–609, we can get this information about the foods we commonly eat.

Besides considering calories, vitamins, and mineral matter there are some other matters we should think about in planning meals. Let us carefully consider whether the menu given on page 330 is a good one.

What is the quality of proteins in this meal? We have mentioned that proteins give energy or heat. They may also build and repair the body. (See page 58.) To build and repair the body, proteins must be of good quality. In one or more meals of the day, we need proteins of good quality. Are any foods which contain a good quality of proteins included in this menu we are discussing? Beans are rich in proteins but they are of poor quality. (See page 251.) Bread contains some proteins, but of intermediate quality. Milk contains a small quantity of proteins of good quality. Our meal then has some proteins of good quality. The proteins of poor and intermediate quality are supplemented with some of good quality.

From the results of experimenting, it is believed that about *10 to 15% of the total calories should be produced by proteins*. The table on pages 600–609 gives the calories produced by the proteins in one serving of foods. You will notice that the calories from proteins are listed for the luncheon menu on page 330. This shows that over 10% of the calories are produced by

proteins. Since not all the proteins are of excellent quality, there is perhaps not too much protein in this meal. Then, too, the calories from the proteins of the other two meals for the day should be taken into consideration. In a later lesson the food value of the meals for an entire day will be discussed. (See page 452.)

Are iron, calcium, and phosphorus contained in this meal? In studying the lists of foods rich in iron, calcium, and phosphorus, we find that little iron is contained in this meal. There is a small quantity of iron in whole-wheat bread, beans, and cabbage. In one of the other meals of the day used with this one, beef or spinach or liver or egg or some other iron-rich food should be included.

Since milk, as we learned on page 268, is our best source of calcium, we are sure of some calcium in the meal. Dried beans also contain some calcium.

Milk contains not only calcium but phosphorus.

From the table given on pages 600-609 it is possible to determine whether the *amount* of calcium, phosphorus, and iron of a day's meals is sufficient for the daily needs of the body. More about this is given when the food value of an entire day's food is considered.

What vitamins are contained in this meal? Every one of the foods contained in this meal supplies vitamins with the possible exception of cottonseed oil. Butter and milk are especially good sources of vitamin A. Vitamin B is supplied by all but one food. Cabbage is an excellent source of vitamin C. Milk is rich not only in vitamin A, but in vitamin G. Milk and butter also contain some vitamin D.¹ Hence the vitamins are well represented in this meal. Every meal should contain vitamin-rich foods. Use foods rich in vitamin C every day, because the body does not hold this vitamin in store.

¹ Exposure to sunshine, taking cod-liver oil, and using irradiated foods, especially irradiated milk, are other ways of obtaining vitamin D.

Are all other foodstuffs represented in this meal? Let us call the roll of foodstuffs:

Carbohydrates — Beans, Banana, and Bread answer *Yes*.

Fats — Butter says *Yes*; Milk answers *Yes* somewhat faintly.

Proteins — Beans, Bread, and Milk say *Yes*.

Mineral Matter — The answer *Yes* comes in a chorus — Beans, Bread, Butter, Cabbage, and Milk all speak together.

Water — Milk answers a brisk *Yes*; Cabbage bravely follows, while faint replies come from all the other foods.

There appears to be a good representation of all the foodstuffs in the meal.

Does the meal contain roughage? It is important that a meal have foods containing cellulose or roughage. Beans, cabbage, and Graham bread contain cellulose.

Are the foods of the meal in season? The foregoing menu is one that could be served at almost any time of the year. For example, although cabbage is a fresh vegetable, it can usually be obtained during the entire year. However, cabbage that is freshly picked contains more of vitamin C than that which has been in storage for some time. Nevertheless, since cabbage is so rich in minerals, we consider it a valuable food even though it is cooked or has been in storage for some time. Variety of menus depends to a considerable extent, then, upon the season of the year.

Because an unseasonable food is invariably high in price and difficult to obtain, we do not consider as practical a menu that contains foods out of season.

Is the meal digestible? Baked beans sometimes cause distress if they are not well chewed. With thorough mastication, the normal person should digest them with comfort. Uncooked cabbage also needs to be eaten slowly and masticated thoroughly. Bread, butter, and milk are easily and quickly digested.

Is the meal palatable? When we were planning breakfasts, we learned there were several points to think about when selecting foods that would taste good together. The same points apply to other meals as well as to breakfasts. A combination of foods mild and pronounced in flavor and of dry and moist foods should compose the meal. The foods that are eaten together should taste good together. In the meal being considered, the bread and milk are mild in flavor, while the beans and the cabbage, with its well-seasoned dressing, have a pronounced flavor. The beans and bread are dry, while the dressing on the cabbage and the milk are moist. The flavors of the different foods blend very well together. Our meal may then be pronounced a palatable one.

Does the meal look inviting? Do you think a meal of mashed potatoes, creamed turnips, white bread, butter, and milk would look inviting? The foods are all colorless. In planning a meal think of the way foods are going to look together. There should be some *colored foods* along with the colorless ones. The colorful foods should harmonize in color. In the meal being planned, the golden brown of the beans and the light green of the coleslaw give it some color. Some *garnishes* that would add a touch of strong color would greatly improve the appearance of this meal. A sprig of parsley or a slice or wedged-shaped piece of fresh tomato would add pleasing color to the beans. Both the parsley and tomato might be used on the beans.

A bit of pimiento would improve the coleslaw. In case tomato was not used on the beans, tomato could be used on the coleslaw. A green sprig would give the cabbage a pleasing touch also.

Notice that for these garnishes materials that are good to eat are suggested. *Garnishes should be edible.* Also, it seems only sensible to eat them. Parsley is a leafy vegetable rich in mineral matter and vitamins. It tastes good. Why not eat it? Should a bit of fresh tomato brim full of nourishment be left uneaten?

What are the points to be considered in testing menus for a day? The meal we have just considered was weighed in the balance and was not found wanting. It was given a thorough test and it passed the examination. It is unnecessary to have each meal meet all the requirements that make persons healthy. But *it is necessary to include in the three meals of a day foods that meet the requirements of health.* A breakfast lacking in proteins may be a good one. It may contain all other essentials needed for good nourishment. If the luncheon or dinner contains proteins, the food for the day may be all that is needed for health. In planning meals, it is a good thing to consider the three meals together. It is, of course, not at all difficult to have each meal of the day conform to all the requirements of nutrition. Each meal should contain, of course, foods that taste good together.

Let us sum up all the points on which the meal under consideration was tested:

1. Does the meal furnish the proper number of *calories*?
2. If it contains *proteins*, are they good in quality?
3. Does it contain foods rich in *iron*, *calcium*, and *phosphorus*?
4. Does the meal contain *vitamins*?
5. Does it contain *all other foodstuffs*?
6. Does it contain *roughage*?
7. Does it contain *seasonable* foods?
8. Is it *digestible*?
9. Is it *palatable*?
10. Is it *inviting* in *appearance*?

In what order is food served for a luncheon or a supper? Turn to the plans for luncheons or suppers on page 328. In the menus containing soups, do you see that soups are placed first? The reason for this was explained on page 236.

Then the main course follows. This course contains the main dish, bread and butter, and often a vegetable. If a salad is contained in a menu, it may be served after or with the main course.

The dessert, as explained on page 311, is the last course. In writing a menu, the beverage is usually listed with or after the dessert. Some persons prefer to drink the beverage with or after the dessert and others like it earlier in the meal. For formal service the beverage is served at the close of a luncheon or a dinner.

In the home where there is no one to help with the meals, it is sensible to serve foods in just as few courses as possible. If a luncheon or supper is very simple and consists only of a hot main dish, bread and butter, dessert or salad, and beverage, all the foods for the meal can be put on the table before the family sits down. Since the dessert or salad is a cold food, it will not be harmed by standing on the dining table until the other foods are eaten.

What do you need to keep in mind when getting a meal? A girl once said fifteen minutes before a meal was to be served: "I wish I had an extra pair of hands." She was getting the meal all by herself for the first time. To her it seemed that there remained more than one person could do before the meal was to be served. Perhaps you have had a like experience. Until one learns how, getting a meal on time seems overwhelming. We do know, however, that there are persons who can get an elaborate meal and have every food just in the right condition — hot or cold — at the appointed time. Let us consider this problem.

If you are cooking mashed potatoes, you must know how long a time is required for potatoes to become tender. You must know also how long it is going to take you to pare and to mash the potatoes. You will find that you need to know the time required (1) *to make a food tender*, and (2) *to prepare the food for cooking and for serving*.

If you are preparing mashed potatoes, roast beef, gravy, and lettuce salad, you cannot finish up entirely any one of these foods and then turn to another food. You will have to do

some work on one and then work on the second and third and perhaps come back to all of them just before the meal is served. To do this, you will have to *learn to be a good manager*.

Since you must have several foods ready to serve at one time, you will have to know *what foods are unharmed by standing* after cooking and what foods must be *served immediately* after cooking.

In getting a meal, it is very important to keep in mind every step in preparation. Decide :

1. What foods require the longest to cook
2. What foods must be cooked and then cooled before serving
3. What you can do while the foods are cooking, such as setting the table, placing dishes in the warming oven, or measuring the ingredients for a sauce or for a quick bread
4. What you must do just before the meal is served

Remember this — becoming a good planner and a good manager does not come with the first trial. It takes practice; it takes earnest effort. To know that not only you yourself, but your mother and perhaps the entire family are benefited by your work makes the effort well worth while.

How is the luncheon or supper table set? The *linen* for the luncheon or supper table may be of the same style as that used for breakfast. Doilies, runners, or lunch cloths are suitable for this meal. A tablecloth also may be used.

Soup, salad, and dessert are foods often used for luncheon or supper. If these foods are served, silver for eating them must, of course, be placed on the table. The soup spoon is placed on the right side of the cover with the teaspoons. Since soup is often the first course served, the soup spoon is placed farthest to the right. (See Figure 100.)

The fork for salad, whether it be a plain fork or a salad fork, is placed beside the fork used for the main course. Since the salad is served after the main course, the salad fork is placed nearer the

center of the cover than the plain fork. In case a salad is served as a part of the main course, a separate fork for the salad is unnecessary.

When salad is served with the main course as a side dish it may be placed at the *right* of the luncheon plate unless a beverage is served with this course. Then, it should be placed on the *left*.

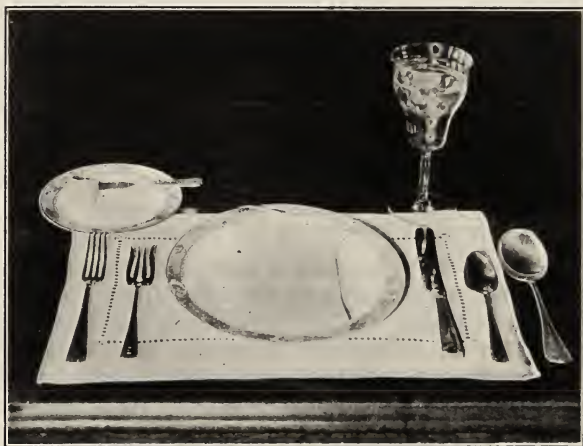


FIGURE 100. A LUNCHEON COVER

Notice that the soup spoon is placed farthest to the right because it will be used before the teaspoon. The fork to be used with the knife is placed farthest to the left because it will be used before the salad fork, which is next to the plate. Notice that the napkin is folded rectangular and placed in the center of the plate.

If salad is served as the main dish of the main course, it should be placed in the *center* of the cover.

The silver for the *dessert* may or may not be placed on the table when the table is set. Teaspoons or forks used for serving desserts may be brought to the table at the time the dessert is

served. If this plan is followed, the spoon or fork is usually placed on the dessert plate at the side of the dessert.

We learned that a napkin could be placed on the extreme left side of the cover or on the plate in the center of the cover. Unless the first course is placed on the table before the guests are seated, the napkin may be placed on the plate in the center of the cover.

What style of service shall we use for a family luncheon or supper? In studying the serving of breakfast, we found that the *family style* of serving was the best to follow when there was no special person to wait on table. This style of serving can be used equally well for luncheon or supper and in fact for dinner.

What is the Russian style of service? There is another style of serving which is sometimes followed for luncheon or supper, especially in homes where there is a maid to wait on table. The style is called the *Russian style*. The main difference between this and the family style is that food is divided into individual portions in the kitchen rather than in the dining room. These portions are often put on individual serving dishes. Thus, a salad may be arranged on as many individual salad plates as there are persons at the table. A portion is then placed at each guest's cover.

Sometimes the food is separated into portions in the kitchen but left on the general serving dish. A roast of meat, for example, is sliced in the kitchen and arranged on a platter. The platter of meat is then passed to each guest, who lifts the food from the general serving dish to his own plate.

No matter in which way the Russian style of serving is carried out, *it is not suitable for service without a maid*. If a hostess attempts to follow this plan when she has company, she must make too many trips to the kitchen to serve the meal gracefully.

What is the compromise style of service? There is a third style of serving called the *compromise style*. It is a combination of the English or family style and the Russian style. The

Russian style is often used for the soup and dessert, the family style for the main course. This style is used in many homes. If one has a wheel tray so that the individual portions may be carried in one trip to the dining table, the compromise style is efficient to follow when there is no maid assisting. To arrange the food in individual portions in the kitchen may mean the saving of filling, emptying, and washing a general serving dish. The main thing to consider when using the compromise style in serving without a maid is whether many trips must be made in getting the food on the table.

Statistics show that there are servants in only a small percentage of homes in this country. We are particularly interested, then, in learning how to serve a meal gracefully and efficiently without a maid. In the following section let us consider serving luncheon or supper without a maid.

How shall soup and fruit cocktail be served? One of the charms of a good soup is that it is hot. A soup should be served, then, so as to keep it hot. When there are guests at a meal, should soup be placed on the table before or after the guests are seated? If placed on the table before the guests are seated, a soup sometimes becomes cool during the seating of the guests. A general rule that may be followed is to serve a hot first course after the guests are seated. However, if the guests are few in number or if only the family are present at a meal, it may be satisfactory and more convenient to have the soup on the table before the guests are seated.

A fruit cocktail or fruit cup used as an appetizer may be placed on the table before the guests are seated. Since this food is served cold, it is not harmed by standing during the time the guests are seated. (See Figure 101.)

How should the main course and the salad be served? When there is no maid serving, the main course of luncheon is served much as the main course of breakfast. The serving dish or platter containing the main dish is placed in front of the host.

If there is a vegetable or any food other than bread and butter which is served with the main dish, it is placed at the right of the main dish. The host places a portion of the main dish and accompanying food on a plate and passes it to each person at the table.



FIGURE 101. A FAMILY LUNCHEON TABLE READY FOR SERVICE

The first course, fruit cup, is at each cover. A plate of lettuce is also at each cover. Since a beverage is not to be served with the salad, the latter is most conveniently placed — at the right. A bottle of salad dressing is on the table.

A stand for the hot beverage, the creamer, sugar, and a pitcher of water to replenish the goblets are on the table.

Notice the low flower arrangement. Also notice the napkins. They are folded in the form of a rectangle, not in a triangle. A napkin folded in a triangle is not in harmony with the shape of the table. The last fold of the napkins was not pressed with an iron. It was made when the napkin was placed on the table.

It used to be the custom to serve in sauce dishes those vegetables which were moist or served with a thin sauce. Now it is customary to place all vegetables on the luncheon or dinner plate with the other foods of the main course. Separate dishes are no longer used for hot vegetables.

A salad arranged on a bed of lettuce may be placed on individual salad dishes or on a general serving dish. The former is often preferred since some salads are difficult to lift from the general serving dish to the individual plates.

If the salad is arranged on individual serving plates in the kitchen, the Russian style of serving is used for the salad. If the salads can be carried to the dining room as suggested on page 154, in one trip, this style of serving will not mean extra steps.

The *salad dressing* may be served in one of two ways: (1) a spoonful may be placed on each salad portion when the salad is arranged on the plate; or (2) the dressing may be put in a general serving bowl, placed on the dining table, and passed so that each guest may help himself.

Formerly it was thought that salads should be cut at the dining table with the fork only. Now a knife may be used, if necessary.

How should the dessert and the beverage be served? Strawberries, apple sauce, rice pudding, and similar desserts may be conveniently served in the family style at the dining table. Other desserts such as pie and gelatin may be served in the Russian style. It is possible, of course, to serve all desserts in the family style. Even ice cream or other frozen desserts may be placed in a large bowl and served at the dining table. Brick ice cream may be brought to the dining table on a platter and sliced into individual portions. The method of serving the dessert depends upon the kind of dessert as well as upon the choice of the hostess. The main thing to consider in planning the method of service is that the serving be done efficiently and neatly.

If milk is used as a beverage, it is placed in a tumbler beside the water glass. Home makers usually find it convenient to pour beverages other than milk during the serving of the meal. A pot of cocoa or other beverage with cups, saucers, and, if necessary, cream and sugar may be brought to the dining table on an ordinary tray or service wagon. (See Figure 52, page 156.)

This may be served with the main course or after the dessert. The latter is more formal.

For formal service at either luncheon or dinner, coffee may be served in small cups. Such coffee is usually strong and served without cream and sugar. The flavor of strong clear coffee following sweet desserts is liked by some persons. Strong coffee served in the small cups is sometimes called *demi-tasse*.

Shall the table be crumbed? Removing crumbs from the table is not a particularly attractive bit of work. Do it only when necessary. If bread and butter plates are used, there may be no crumbs on the table. Crumbing the table may be necessary only after those courses at which bread or crackers are served — not after every course. To crumb the table, use a folded napkin and plate. Crumbing the table should be done as inconspicuously as possible. Usually, it is omitted when there is no maid.

When should finger bowls be used? We learned on page 134 that some foods should be eaten from the fingers. To remove food stains from the fingers, a finger bowl is sometimes used. There should be a finger bowl for each person at the table. Finger bowls are especially desirable when fresh fruit is served whole. The bowls should be arranged on a plate with a doily between the bowl and plate. Finger bowls may be brought to the table before or after the dessert is served. Sometimes, a bowl and plate are brought to each cover. Each guest then removes the bowl and doily, placing it above the plate. The dessert is then placed on the empty plate.

In using a finger bowl, dip only the finger tips on one hand at a time in the water. Wipe the fingers on the napkin.

SUMMARY

A *calorie* is the quantity of heat required to raise 1 pint (or pound) of water about 4° F.

The food value of the *foodstuffs* that “burn” or oxidize in the body can be measured in *calories*.

Foodstuffs whose value can be measured by calories:

1. Fats
2. Carbohydrates
3. Proteins (The quality of proteins also must be considered in measuring their value.)

Foodstuffs whose value cannot be measured by calories:

1. Mineral matter
2. Vitamins
3. Water

A menu or the diet of an entire day should

1. Furnish sufficient calories
2. Contain proteins of good quality
3. Contain mineral matter, including iron, calcium, and phosphorus
4. Contain vitamins
5. Contain all other foodstuffs
6. Contain roughage
7. Contain seasonable foods
8. Be easily digested
9. Be palatable
10. Look inviting

Three types of table service:

1. *Family style* or *English style* — Foods are separated into portions at the dining table by the host and hostess or other members of the family. This style is suitable for service with or without a maid, especially the latter.
2. *Russian style* — Foods are separated into portions in the kitchen. This style of serving may be carried out in one of two ways:
 - a. Portions of food may be placed on individual plates and placed before the guests
 - b. Portions of food may be arranged on a general serving dish and passed so that each guest may help himself. The Russian style of service is suitable only for service with a maid.
3. *Compromise style* — A combination of English and Russian styles. This style of service is suitable with or without a maid. Its success without a maid depends upon whether the individual portions can be carried from the kitchen to the dining room efficiently.

REVIEW QUESTIONS AND EXERCISES

1. Tell why the following menus would not keep a person in a healthy condition :

Beef Steak	Meat Pie
Baked Potatoes	Dried Lima Beans
White Bread and Butter	Biscuits — Butter, Jelly
Cherry Pie	Crackers, Cheese, Tea
Coffee	

2. Change these menus so that they will nourish the body well.

3. Why would the following menus make unattractive meals?

Potato Soup	Whitefish
Rice and Cheese	Mashed Potatoes
Boiled Parsnips	Baking-Powder Biscuits — Strained Honey
White Bread and Butter	Tapioca Custard
Blancmange	

4. How would you change these meals to make them attractive in appearance?

5. The following menu was served in Cleveland, Ohio, in February. State why it is faulty.

Veal Steak
Fresh Buttered Peas
Lettuce with Thousand Island Dressing
Bread and Butter
Strawberry Shortcake

6. How would you change this menu to make it satisfactory?

7. Determine the number of calories supplied by the food you ate yesterday. How does the total number of calories compare with the caloric requirement of a healthy girl (or boy) of your weight?

8. If the total number of calories in the food you ate yesterday is not within 100 calories of what it should be, what changes should you make in your diet?

9. Using the table on pages 602-609, determine whether the food you ate yesterday contained vitamins A, B, C, and G.

10. Using the table on pages 602-609, determine whether the food you ate yesterday contained iron, calcium, and phosphorus.

11. If your food was lacking in iron, calcium, or phosphorus or in any of the vitamins, state what you should eat to supply the necessary substances.

Note to the Teacher: In order that pupils may actually correct faults in diet, it may be advisable to have them repeat these exercises a number of times during the remainder of the term. Having a pupil test his diet of the previous day has the advantage that the diet is easy to remember. Moreover, the previous day will probably represent the pupil's average diet as well as any day. In order to determine whether or not there is any *improvement* in diet, and also to give the pupil *incentive* for improvement, it may be well to post a record of the dietary habits of each member of the class.

HOME WORK

1. Keeping in mind the suggestions given in this chapter for planning meals, plan at least two luncheons or suppers that would be suitable to cook and serve in your home.
 2. If possible, cook these meals in your home.
- If school credit is desired for home work, take a report to school signed as suggested on page 30.

UNIT 4: DINNER

CHAPTER XXVI

MEATS FOR DINNER — BUYING BEEF

Can you answer these questions? If not, look for the answers as you study this chapter.

1. How much meat should you eat each day?
2. Are tender cuts of meat more nourishing than tough cuts?
3. What makes some parts of beef tender and some parts tough?
4. What is meant by inspected meat? Is meat inspected in your community?
5. Is tender meat fine or coarse-grained?
6. Does meat contain any fat other than what you can easily see?
7. State some reasons why flank steak is an economical steak.
8. What is the difference between a standing rib roast and a rolled rib roast?
9. Why should meat not be soaked in a pan of water when it is being washed?

Shall we eat meat? "Yes," replies the one who thinks of food only as something good to eat. "Yes," replies the scientist who thinks of meat as a nourishing food.

There is perhaps no more popular food flavor than that of meat. Most persons like meat. Recent research confirms the idea that meat is a wholesome food. Meat is easily digested and is a good source of protein, iron, and vitamin G. It is not, however, the most economical source of these nourishing materials.

How much meat should we eat? The amount of meat that should be eaten depends largely upon how many eggs and how much cheese and fish are included in the diet. Because these foods contain excellent proteins, not as much meat is needed if they are eaten.

According to the plan for buying foods given on page 200, a tenth to a fifth of each dollar spent for food should be used to buy not only meat, but fish and eggs.

In buying meat, round steak, for example, allow four servings to the pound. Each serving will contain not as much as four ounces of lean meat because of the bone, fat, and shrinkage in cooking. Only about sixty-five per cent of round steak is eaten. One serving of meat a day is thought to be adequate for most persons. A diet containing meat should also include milk and vegetables, especially the leafy ones.

Why should meat be eaten moderately? When food is eaten, it passes into the stomach and intestines. As it passes through these organs, some parts of the food are absorbed into the blood and thus nourish the body. Other parts of the food are eliminated from the body.

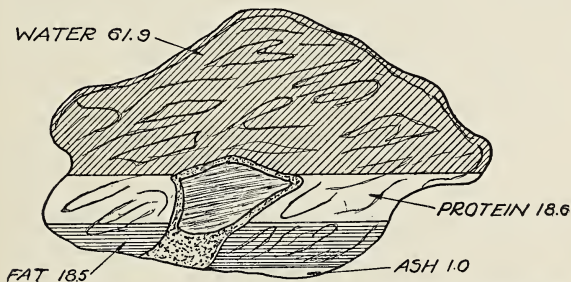
It is not good to have any food remain too long in the digestive organs. When foods remain longer than they should, injurious substances are formed which harm the body. If much meat and eggs are eaten, these foods are apt to remain too long in the intestines. There they may decay or *putrefy*. According to McCollum and Becker¹ the putrefaction of meat and eggs in the intestines is believed to be harmful. When food putrefies in the intestines, a disagreeable or "dark brown" taste sometimes results, accompanied by a bad breath. Headaches and other disorders may be caused by intestinal putrefaction. However, if plenty of fruits and vegetables are included in the diet and at least 5 or 6 glasses of water are taken each day, there is little danger of putrefaction when only a moderate amount of meat is eaten.

What does meat contain? Study Figure 102, to learn of the composition of beef.

¹ See page 74 of *Food, Nutrition, and Health*, Third Edition, by McCollum and Becker.

Why is there a demand for expensive cuts of meat? A butcher once said to a home-economics teacher: “Do teach girls that there are some good cuts of meat other than porterhouse.” The customers of this meat dealer made it difficult for him to sell all parts of the animal. When he bought porterhouse steaks or roasts, he had to buy other cuts of meat also. For some of these cuts he had little demand.

In beef, mutton, pork, and many of the other animals used as food, there are certain parts which are tender and other parts



Redrawn from U. S. Department of Agriculture Chart

FIGURE 102. COMPOSITION OF THE EDIBLE PORTION OF BEEF STEAK

Notice the percentage of protein. The protein of meat is of excellent quality. Because meat contains a high percentage not only of protein but of fat, it is considered a concentrated food. Meat muscle is poor in *vitamins* except B and G. Lean beef contains vitamins A +, B ++, C - to +, G ++ (see Note 1, page 37).

which are tough. For the more tender parts, a higher price is charged. Why do people like tender cuts of meat when they are so high in price? There are at least two reasons for this: (1) the tender cuts taste good, and (2) they are quickly cooked.

Is it advisable to buy the cheaper cuts of meat? Are the tender cuts more nutritious than the tough cuts? In answer to this question we again quote McCollum and Becker.

These authorities say: "The nutritive value of the cheaper cuts is in every respect comparable to the more expensive cuts."¹ Thus we *gain nothing as far as nourishment is concerned by buying the more expensive tender cuts.*

It was mentioned that tender cuts were liked because they taste good. Is it possible to make the tough cuts taste good? The answer to this question is "Yes." In fact the *tough muscles contain more flavoring materials* or extractives than the tender cuts. These flavoring materials make tough meats taste good. However, we cannot notice or appreciate the taste of tough meat when the meat remains tough. It must be cooked long enough to make it tender before we can enjoy the taste. In order to make tough cuts tender, it is necessary to cook them a long time or to chop them.

There are some ways of cooking tough cuts of meat whereby the meat has a delicious taste and becomes tender enough to cut with a fork. It is wise to learn of ways of making the tough and cheaper cuts of meat taste good. By learning how to do this, one's family can have good meat at much less cost than if the more expensive cuts are used. A girl has the opportunity of proving helpful to her family if she learns how to make inexpensive cuts of meat taste good.

What makes some cuts of meat tougher than others? Cattle stand much of the time. They use the muscles of their legs almost continually. A cow's leg muscles thus become strong and well developed. The muscles that are used most become the toughest. Meat from the legs, neck, and shoulders are among the toughest cuts. Along the backbone of the animal, there is a muscle which is less used than some other muscles. This muscle makes the most tender meat. Knowing that much-used muscles make tough meat and little-used muscles make more tender meat helps us to learn to locate the tough and tender cuts of meat.

¹ See page 70 of *Food, Nutrition, and Health* by McCollum and Simmonds.

Animals used for food are cut into halves and each half cut so as to form quarters. In general it can be said that more of the tender cuts come from the hind quarters than from the fore quarters. Only about a fourth of an animal consists of the more tender cuts.

What is inspected meat? Animals used for food may be diseased. The meat of such animals may prove harmful to man. Meat, as you doubtless know, spoils readily. If it is kept for any length of time, it must be kept cold. It also must be handled under sanitary conditions to keep it fit for food.

In order to prevent people from getting diseased or spoiled meat, the United States government and some state and city governments inspect meat. That meat which is diseased or spoiled is, of course, not allowed to be sold for food. However, not all meat sold in the same state in which it is slaughtered is inspected.

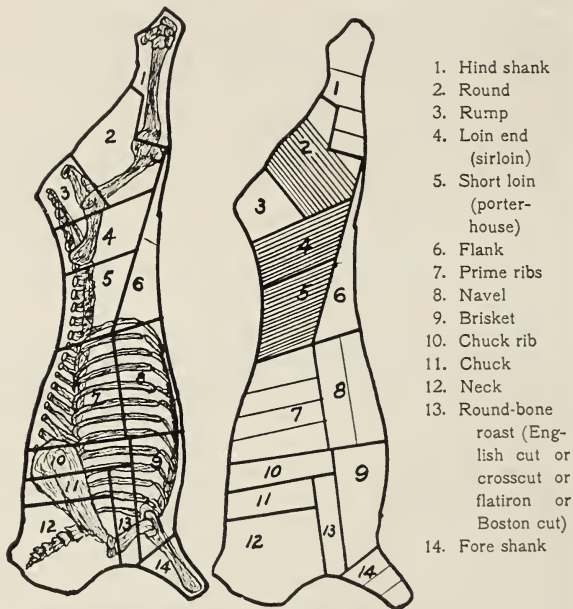
Meat which is inspected by the federal or state government is stamped. When buying meat at a market, ask the butcher whether the meat he sells has been inspected by the United States, state, or local government. Ask him to show you the stamp which appears on inspected meat.

What are some points to consider in buying beef? Since more beef is used for food than any other animal, we shall consider first the buying of beef. Some points to observe are:

1. The *fat*. Beef that is tender and of fine flavor has a generous amount of fat, not only around the edge of the piece of meat, but sprinkled through it. The fat of good beef is also light in color — pale cream or white rather than yellow.

2. The *grain*. If the lean part of beef looks stringy, the meat is probably not tender. The grain of meat is, of course, very different in different cuts. Flank steak even in the best quality of beef is more stringy and coarse than sirloin steak. But flank steak is not so tender as sirloin steak. Stringy, coarse meat is tough, while fine-grained, smooth meat is tender.

3. The *bone*. The appearance of the bone is one indication of the age of the animal. The bone of a young animal is light pink and fine-grained. It contains marrow. The bone of older animals is gray and coarse-grained.



Adapted from a Chart by Bell and Helser, Iowa State College

FIGURE 103. HALF A BEEF SHOWING BONES AND CUTS

The diagram containing the skeleton shows how beef is cut into large pieces or cuts. The other diagram shows how the cuts may be separated into pieces of suitable size for roasts or stews, or sliced into steaks.

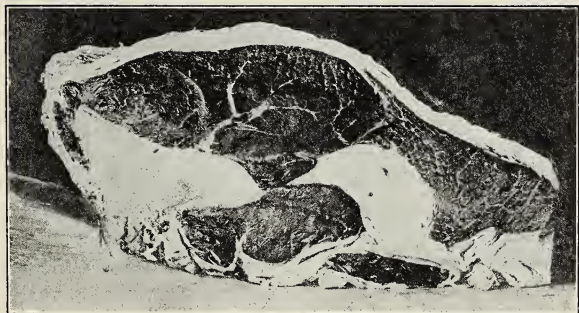
What are some tender cuts of beef? Along the backbone there is a muscle which is very tender. This muscle is called



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FIGURE 104. SIRLOIN (NEXT TO THE RUMP AND THE ROUND)

Notice the shape of the bone. This cut is sometimes called *round-bone sirloin*. The entire sirloin section is sliced for steaks or cut into pieces for roasts.



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FIGURE 105. SIRLOIN (IN THE MIDDLE OF THE LOIN END)

Notice the shape of the bone and the appearance of the lean portion. This is the choicest part of the sirloin cut.

the *tenderloin*. In Figure 103, sections 4 and 5 contain this muscle. From these sections, *porterhouse* and *sirloin* steaks are cut. These sections are also cut into roasts. Sirloin steaks are larger than porterhouse and have a different-shaped bone. (See Figures 104, 105, and 106.)

From section 5, not only porterhouse steaks are cut, but steaks known by three different names — *club*, *Delmonico*, and *T-bone*.



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FIGURE 106. SIRLOIN (NEXT TO THE PORTERHOUSE)

Notice how the bone differs from that shown in the two preceding figures. This cut is sometimes called hip steak.

(See Figures 107 and 108.) Sometimes steaks from this section are sliced very thin — about a half inch in thickness. These thin steaks are known as *minute steaks* because they can be cooked quickly. Club, Delmonico, or T-bone steaks are smaller than porterhouse steaks. They contain less of the tenderloin muscle than the porterhouse.

Both porterhouse and club steaks are expensive cuts. They contain a large percentage of bone — from 6 to 12%. The



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FIGURE 107. PORTERHOUSE (NEXT TO THE SIRLOIN)

The oval piece of lean meat in the lower corner of the bone is the *tenderloin* muscle. The meat above the bone is usually not quite so tender as the tenderloin muscle. The lean meat at the extreme right end is coarse and stringy.



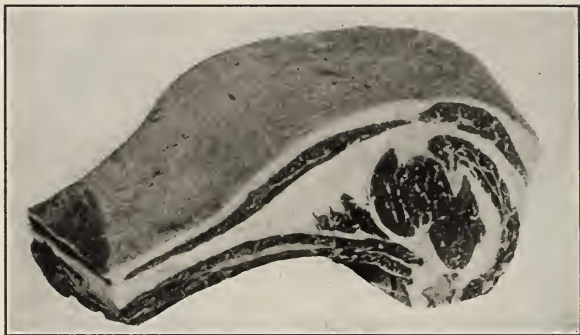
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FIGURE 108. CLUB (NEXT TO THE PRIME RIB)

Steaks from this cut are called not only *club* steaks but *Delmonico*, *T-bone*, and *minute* steaks. Compare the size of the tenderloin muscle with that shown in Figure 107. Often there is no tenderloin muscle in this cut.

large amount of fat and the coarse-grained end of the steak leave little of the lean tender portion.

Sometimes the whole tenderloin muscle is cut from the loin section. It is then called *fillet of beef*. This is either sold as a roast or cut into slices for broiling. Beef fillet is expensive, but there is no waste to it.



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FIGURE 109. STANDING RIB ROAST

Notice the rib bone at the lower edge of this cut.

On hotel menus one often sees *prime-rib roast of beef*. This refers to the meat coming from section 7, Figure 103. The two ribs next to the club steaks form the most tender and most expensive rib roast. When a rib roast has the bone left in it, it is known as a *standing rib roast* (Figure 109). When the bone is cut away and the meat is rolled, the latter is called a *rolled rib roast* (Figure 110). It is thought by some that a standing rib roast has a finer flavor than a rolled rib roast. However, the latter is usually juicy when roasted and is easier to carve.

A rib roast is an expensive piece of meat. It is about 12% bone. Usually at least two ribs are sold for a roast. A two-rib roast with the bone included weighs about six pounds.

What are some less tender cuts of beef? In the hind quarter there is a cut known as rump. (See Figure 103, section 3.) This is cut into roasts or pot roasts. This is a good cut of meat if properly cooked. It costs less than prime-rib roasts. (See Figure 111.)

The *round* is cut from the upper part of the hind leg. (See Figure 103, section 2.) This cut has a round bone. The piece is cut into roasts, pot roasts, steaks, or stews. (See Figure 112.)

In the fore quarter there is a section called *chuck*. (See Figure 103, section 10.) This cut is used for roasts. In a beef of good grade, this cut makes a good roast if properly cooked. It is less expensive than the prime ribs. The chuck (section 11) is used for steaks and stews. Both the chuck rib and chuck contain not only rib bones, but a part of the shoulder bone. Steaks and pot roasts cut



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FIGURE 110. ROLLED RIB ROAST

In buying a rolled rib roast, have the bones which were removed from the roast wrapped with the meat. They are good for making soup.

from the chuck make good meat if they are well cooked. Meat from the chuck section should be used more often than it is. (See Figure 113.) A good roast known as *English cut* and by other names comes from section 13, Figure 103.

From the *flank* section (see Figure 103, section 6) pieces of meat are cut for stews and corned beef. There is an interesting steak cut from this section known as *flank steak*. (See Figure 114.) A flank steak has no bone. Its meat is coarse-

grained and tough. However, it can be cooked so as to make it tender and delicious. It is an economical cut.

Between the rib (7) and navel (8) sections there is a steak known as *skirt steak* (Figure 114). This is coarse-grained, somewhat like flank steak.

Other less tender cuts of beef are :

Neck (Figure 103, 12)

Brisket (Figure 103, 9)

Foreshank (Figure 103, 14)

Navel (Figure 103, 8)

Hind Shank (Figure 103, 1)



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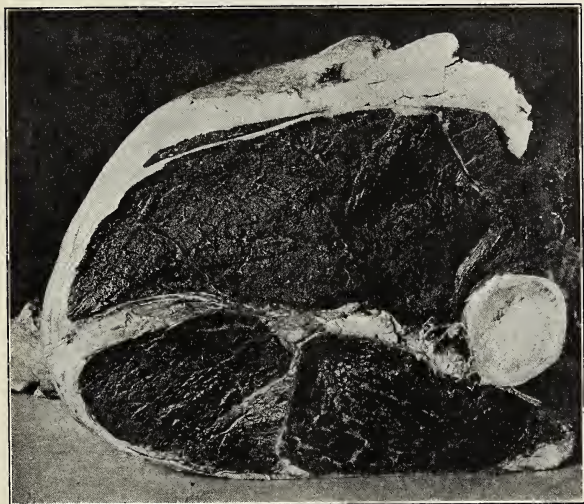
FIGURE 111. RUMP

Rump is one of the less tender cuts which can be cooked so that they will taste good.

These cuts are used for soup making, stewing, corning, and chopped meats.

What should be done with meat when it comes from the market? How is meat washed? Since meat spoils readily, it must be kept in a cool place. Uncooked meat spoils more quickly than cooked meat. When meat is brought from the

market, remove its paper wrapping. Put it on a suitable dish and place it in the refrigerator or other cold place. (See Figure 35, page 173.)



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FIGURE 112. ROUND

The shape of the bone explains why this cut was so called. Notice that the lower part of the cut consists of two muscles. The *lower round*, as it is called, is from the outside of the leg. The upper part consists of one large muscle and is called the *top round*. This part is from the inside of the leg and is more tender than the lower round. If round steak is desired for pan-broiling, the top round should be purchased. The lower round is suitable for chopped steak.

Meat needs to be washed before cooking. Meat is not washed, however, by placing it in a bowl or pan of water as many other foods are washed. If it is left in water, the juices are drawn out. This is a waste, since the juices contain flavoring

materials. Meat should be so washed as to prevent it from becoming water soaked. To do this either (1) wash it with a clean cloth wrung out of cold water, or (2) wash it with a



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FIGURE 113. CHUCK AND SHOULDER-ROUND STEAKS

Upper—chuck steak. Notice the two bones in this cut, shoulder-blade and rib.

Lower—shoulder-round steak. There are two bones in this cut also. The bone in the center is the round bone of the shoulder; the bone at the base is the rib.

piece of damp parchment paper. Do not plunge meat into water to wash it.

What is connective tissue? How can it be made tender? You may perhaps have noticed that some beef can be easily torn



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A

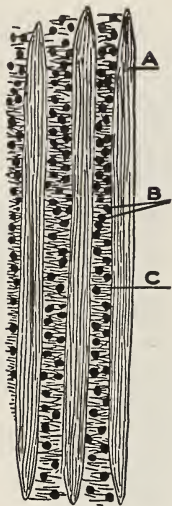
B

C

FIGURE 114. SOME BONELESS CUTS OF BEEF

A, skirt steak; B, hanging tender; C, flank steak. *Skirt steak* is the muscle forming the diaphragm of the animal. It is coarse-grained. *Hanging tender* is the muscle which joins the diaphragm to the back bone. This muscle is tough and suitable for stewing or chopping. *Flank steak* is coarse-grained but fine-flavored; it weighs from 1 to 2½ pounds.

into shreds after it has been stewed. Before cooking it is difficult to shred the meat. This is because the fibers of meat are



From Food and Dietetics by
R. Hutchinson

FIGURE 115. MAGNIFIED DRAWING SHOWING THE STRUCTURE OF LEAN MEAT

A, muscle fibers; B, fat cells; C, connective tissue.

Muscle fibers are really tubes, too small to be seen without a microscope. These tiny tubes hold the muscle juice. Notice that although this meat is considered lean it contains some fat. The connective tissue forms a network, holding the muscle fibers and fat cells together.

held together with a tough substance called *connective tissue*. (See Figure 115.) When the meat is cooked in water, the connective tissue changes to a tender substance. In order to understand better how to cook connective tissue so as to make it tender, let us experiment with it.

Experiment 22: *To show how dry heat affects connective tissue.*

(a) Put a small piece of lean beef from the round or shoulder on a plate. With the end of your spatula or other dull knife, scrape the meat so as to separate the soft red part from the gray tough material. The gray substance is mostly connective tissue. Feel this substance and pull it. Do you find it tough? (Save the soft red part for another experiment.)

(b) Divide the connective tissue in two parts. Put half of the connective tissue in a small frying pan. Place the pan over a flame and heat the connective tissue for a few minutes. Do not add any water to the pan. After heating, feel the connective tissue and pull it. Has dry heat made the tissue more tender or tough?

Experiment 23: *To show how moist heat affects connective tissue.*

Put the other half of the connective tissue in a pan. Cover it with water. Put the pan over a flame and let the

connective tissue cook at simmering temperature for at least 15 minutes. Then feel it and pull it. Has moist heat made the connective tissue more tough or tender?

How should tough meat be cooked to make it tender? We have learned that muscles which are used a good deal become tough. It is the connective tissue of the used muscle which makes meat tough. As shown by Experiment 22, dry heat applied for a short time to connective tissue will not make it tender. But if the meat is heated for some time in water or steam, the connective tissue changes. Gelatin, a tender substance, is formed. When this change takes place in the connective tissue, the tough meat becomes tender.

Thus we see that unless tough meat is chopped into bits, it requires long cooking to make it good to eat. With our modern devices, such as the heat-regulated oven, pressure cooker, and fireless cooker, long cooking of meat is not difficult.

At what temperature should meat be cooked? Recent experimenting has revealed valuable information about the *temperature* at which meat should be cooked to make it tender, juicy, and tasty. If meat is to be roasted, should the oven temperature be high or low? If it is to be cooked in water, should the water boil or simmer? Should meat be put in water to wash it? Should it be salted before or during cooking? Let us experiment to find answers to the last three questions.

Experiment 24: *To show how to wash meat and when to salt it.*

(a) Place the soft red part of meat saved from Experiment 22 in a cup. Add enough cold water to cover the meat. Let the meat stand for at least 15 minutes. Examine the water. What color is it?

(b) Has any of the meat juice been drawn out into the water?

(c) While washing meat, should you let it stand in water? Why?

(d) Take two 1-inch pieces of lean beefsteak; sprinkle one piece on all surfaces with salt. Heat a frying pan. Place the two pieces in the pan. Cook about 1 minute. Turn each. Which piece has browned more readily?

(e) When should salt be added to meat — before or during cooking?

Experiment 25: *To show the effect of cooking meat at boiling and simmering temperatures.*

(a) Fill two saucepans with hot water. In each drop a 1-inch cube of lean beef. Let one piece cook at *simmering* temperature for 45 minutes. When water is simmering how does its surface appear — quiet or in motion?

Let the other piece cook at *boiling temperature* for 45 minutes.

(b) Remove the meat from the water. Cut each in two across the fibers. Does the meat cooked at *simmering* temperature look somewhat moist or dry?

(c) Does the *boiled* meat look more or less moist than the piece cooked at simmering temperature?

(d) Sprinkle each with a little salt and taste. Which cooking temperature — boiling or simmering — makes meat more juicy and gives it a better taste?

How is meat seared and roasted? Many persons like a slice from the outside better than one from the center of a roast. The outside of a roast becomes hotter than the inside. The intense heat produces a pleasing flavor in the outside layer of meat. The flavor of the interior of a piece of meat is not affected by browning the outside. Recent experimenting shows that the intense heat neither prevents the escape of meat juices as was formerly thought, nor prevents shrinkage. However, browning the outside of meat accomplishes two purposes: (1) it makes the meat look appetizing, and (2) it makes the outer layers taste better. Cooking meat at a high temperature so as to brown the surface is called *searing*. Meat is usually seared by heating it in a hot oven or by browning it in fat on the surface burner.

Roast meat is made more tender by baking it at a *low* rather than a high temperature. A temperature of $300^{\circ} F.$ gives satisfactory results. The best way to determine how long meat should remain in the oven is by the use of a *roast-meat thermometer*. This is a pencil-shaped device which may be thrust into a piece of meat. By reading the end of the thermometer extending from the roast its internal temperature can be determined.

How are the less tender cuts cooked? The less tender cuts

may be cooked in a short time if they are chopped before cooking. For chopped meats, the round or shoulder cuts are desirable.

Buy a certain cut of meat, then have it chopped (ground) or chop it at home. If you deal with a reputable butcher and can depend upon him to chop the cut of meat that you order, it is well to ask him to chop the meat. In his larger machine the meat can be chopped easier than at home where the small food chopper is used. Meat cakes may be mixed and prepared as follows:

CHOPPED MEAT CAKES

1 pound beef, chopped
 $\frac{1}{2}$ cup water

1 teaspoon salt
 $\frac{1}{8}$ teaspoon pepper

Mix these ingredients. Let the mixture stand at least 5 minutes. Then shape it into cakes, pressing the cakes so as to make them firm.

Heat a frying pan until very hot. Grease the pan with a piece of fat from the meat. Remove the fat.

Put the cakes in the pan. Sear on both sides; turn them often so as to prevent the cakes from sticking. Turn down the flame so that the center of the cakes may be cooked without burning the outside. The length of time of cooking will depend upon the thickness of the cakes and upon how well done you desire the meat. If you like well-done meat, the cakes should be cooked until the pink color in the center of the cakes has disappeared. If you have had no experience in cooking meat cakes, it might be well for you to test the meat by cutting a cake in two when you think the meat is sufficiently cooked. You can then tell by the appearance whether the other cakes are cooked as you desire them.

Have ready a hot platter. Put the meat on the hot platter and serve it at once. Yield: 6 average or 8 small servings.

Variations. — One egg may be added to the mixture. This will help to keep the cakes from breaking up.

Cooked or canned tomatoes may be used instead of water. The tomato will give the meat a good flavor.

Meat loaf may be made by shaping chopped meat into one loaf instead of into several small cakes and baking it in the

oven. In order to keep the meat loaf in shape, it is well to put an egg in the mixture. The recipe follows:

MEAT LOAF

1 egg	1 cup soft bread crumbs
$\frac{1}{2}$ cup water or tomatoes	2 teaspoons salt
1 $\frac{1}{2}$ pounds chopped beef	$\frac{1}{8}$ teaspoon pepper
4 slices bacon	

In a mixing bowl, beat the egg. Add the water and mix. Then add the other ingredients and mix well. Shape the mixture into a loaf.

Grease a baking dish or bread pan with a bit of bacon. Place the loaf in the pan or dish. Put the slices of bacon on top of the loaf. Bake in a *hot oven* — 400° F. — for 35 to 40 minutes. Serve hot. Yield: 9 slices.

The cuts given in the next recipe are the less tender cuts. We have learned that such cuts should be cooked in moist heat. Hence when we cook one of the less tender cuts in the oven, we place water in the bottom of the roasting pan. We also cover the pan. When the water in the bottom of the pan gets hot, it will boil and steam will be given off. The cover on the pan will prevent the steam escaping. The meat will then cook surrounded by steam.

Cooking meat in a covered roasting pan with water in the bottom of the pan is somewhat like roasting. It is called *braising*. Braised meat, however, may be seared in the oven in the same way as roast meat.

Before we begin to cook a piece of meat, we need to know the weight of the meat in order to tell how long to cook it. Hence meat which is to be braised should be weighed and then washed. In the beginning of the recipe 4 or 5 pounds of meat are given. This is only a suggestion. Any amount may be braised. However, pieces of meat weighing less than the given amount are not so desirable. They are not so juicy as larger pieces. If gravy is to be made, it is well to save some of the fat

for making the gravy. Some fat may be cut from the meat before or after it is cooked.

BRAISED BEEF

4 or 5 pounds beef (chuck-rib or chuck, rump, English cut, or round) 1 cup or more boiling water
1 tablespoon salt

For braising meat, use a roasting pan with a rack in the bottom. Place the meat on top of the rack in the roasting pan. Do not put the cover on the pan until after searing. Place in a *very hot* oven — 500° F. — to *sear*. Let the meat cook at this temperature for 20–30 minutes.

Then pour 1 cup or more of boiling water in the bottom of the pan. There should be about $\frac{1}{2}$ inch of water in the bottom of the pan. Sprinkle salt on the meat. *Cover* the pan and reduce the temperature of the oven. If a gas oven is used, the temperature can be lowered at once.

If the oven is heat-regulated, the temperature should be regulated according to the weight of the meat. A large piece of meat will need to cook longer than a small piece. The longer the meat cooks, the lower the temperature. The following table gives the temperature for meat of different weights. The table gives also the time of cooking:

Weighing less than 6 pounds — 300° F. — 30 minutes a pound

Weighing from 6 to 9 pounds — 275° F. — 30 minutes a pound

Weighing 10 or more pounds — 250° F. — 30 minutes a pound

Some roasting pans have an opening in the cover. The opening, called a valve, may be opened or closed. For braised meat, keep the valve open. The meat will have a better taste.

When the meat is tender, remove it from the oven. Place it on a hot platter. If desired, gravy may be made, using the water and meat juice in the bottom of the pan. While the gravy is being made, keep the meat hot.

GRAVY

Beef fat $\frac{1}{8}$ teaspoon pepper
 $\frac{1}{4}$ cup flour 1 teaspoon salt
2 cups meat juice and water

Remove the rack from the roasting pan and pour the liquid from the pan. Save the liquid to use in making the gravy. Make the gravy in the roasting pan.

Put the fat cut from the meat in the roasting pan. Put the pan over the flame on top of the stove. Try out the fat. When there is about 4 tablespoons of fat, add the flour. Stir the flour and fat until the mixture is browned. Browning the fat and flour will give the gravy a good taste and make it darker in color.

Then add a portion of the meat juice and water. Stir and cook until it thickens. Continue to add the liquid and stir and cook the mixture until all the liquid is used, as you did in making white sauce. Then add the pepper and salt if needed. Serve hot.

There is a method of cooking meat which is similar to braising. It is called *pot-roasting*. Instead of cooking meat in the oven with water in the bottom of the roasting pan, it is cooked on top of the stove in a kettle with water in the bottom of the kettle.

Who does not like the good bread stuffing of a roast chicken or turkey? We often think of meat with stuffing as a "company" dish. Some of the tougher steaks — round or flank — may be cooked with a stuffing. They are delicious and quite good enough for a "company" dinner. However, because the less tender and hence less expensive cuts of meat are used, *stuffed beef roll* may be used often for a family dinner.

STUFFED BEEF ROLL

2 cups soft bread crumbs	$\frac{1}{2}$ cup chopped celery
1 teaspoon salt	2 pounds round steak, sliced thin
$\frac{1}{8}$ teaspoon pepper	or 1 flank steak
2 tablespoons butter	2 cups boiling water
2 slices onion	3 tablespoons flour

Mix the crumbs and seasoning. In a frying pan brown the butter, onion, and bread crumbs. Remove from the fire. Add the celery.

Wash the meat. Trim the fat from it. Cut gashes in the edge of the steak so the edges will not curl when the meat is cooking.

If flank steak is used, hack the surface with a knife. The cuts should be made close together and at right angles to each other. The butcher will hack or score the steak at market for you if you request it.

Spread the bread mixture on the steak. Roll the meat and fasten the roll together with toothpicks or tie string around it. Sprinkle the flour over the roll.

Place a frying pan over a surface burner. Put the fat cut from the meat in the pan. Heat until there is enough liquid fat to brown the meat. Then put the roll of meat in the pan and brown it.

Place the roll on top of the rack in a roasting pan or place it in a casserole. Pour the boiling water in the pan or dish. Cover and bake the meat in a *moderate oven* — 275° F. — for 2 hours or until tender. Remove the roll to a hot platter. Add 1 teaspoon salt and dash of pepper to the roll.

Prepare *gravy* as follows: Mix 1 teaspoon salt, 2 tablespoons flour, and 2 tablespoons cold water. Stir until smooth. Stir this into the broth. Stir and cook the mixture, letting it boil for at least 2 minutes. Pour the gravy over the meat roll. Serve at once. Yield: 6 or 8 slices.

How are tender steaks cooked? Tender steaks need to be cooked only a short time. Too much cooking may make them tough. One of the best ways of cooking a tender steak is to *broil* it. Steak may be broiled in a *gas oven* or *coal range* or grate. The coal or wood in the range or grate must not be blazing. There should be a bed of hot coals.

BROILED STEAK

Porterhouse, Club, or Sirloin

After washing the steak, trim off most of the fat. (The fat is apt to catch fire when meat is broiled.) Cut gashes in the edge of the steak to prevent the meat from curling up during cooking.

If the steak is to be broiled in the gas oven, light the gas burner. Set its temperature at "Broil" and keep the oven at this temperature. In the enamel tray of the broiler, pour from $\frac{1}{4}$ to $\frac{1}{2}$ cup of water. The amount of water depends upon the size of the tray. There should be enough water to cover the bottom of the tray. Place the tray and rack in the broiling oven. Close the oven door. Let the broiler heat about 5 minutes. Then remove the broiler from the oven. Grease the rack with a piece of fat. Place the steak on the hot rack. Slip the tray into the oven, so the top surface of the meat will be about 3 inches from the flame. (If this much space is not possible, turn the flame lower.) Keep the broiler open. Cook the meat until the top surface is sufficiently browned, then turn it and cook the other side. When sufficiently cooked, place the meat on a hot platter. Add butter, salt, and pepper. Serve at once.

The time for broiling varies with the thickness of the steak and the thoroughness of cooking desired. Steaks over 1 inch thick may be broiled 5 or 6 minutes at 500° F., and completed in the roasting oven at 260° F.

If the steak is to be broiled over hot coals, heat the broiler over the coals and grease it. Then broil the meat first on one side and then on the other. Recent experiment has shown that one turning of a steak being broiled gives better results than frequent turning.

PAN-BROILED STEAK

Wash the meat and cut away the fat around the edge. Cut gashes in the edge of the meat. Heat a frying pan until it is very hot. Grease the pan lightly with a piece of fat. Put the steak in the hot pan. Turn the meat often to prevent it from sticking to the pan. If thick club or porterhouse steaks are broiled, stand them on end to brown the edges.

How are tender meats roasted? Barbecued meat is roasted *in front of a fire*. In colonial days meat was cooked *before the fireplace*. We roast meat now by baking it *in the oven*.

As has been mentioned, meat that is to be roasted may or may not be seared. If the roast is tender, it should be cooked in an uncovered pan at a low temperature. If when sufficiently cooked the meat is not brown enough, the oven burner may be turned to 500° F. and the browning completed.

ROAST BEEF

Sirloin, Porterhouse, or Prime Rib

Use a roasting pan with a rack in the bottom. Place the roast *fat side up* on top of the rack in the pan. Sprinkle flour over the meat. *Do not cover the pan* or add water. Preheat the oven to 300° F. (350° F. for small roasts). Place the meat in the oven and roast according to the time given below. Add the salt during or after cooking, not before.

The time of roasting will depend upon (1) the weight of the meat and (2) how thoroughly the meat is to be roasted: *rare*, 18-32 minutes for each pound or *internal temperature*, 140° F.; *medium*, 22-45 minutes for each pound or *internal temperature*, 160° F.; *well-done*, 27-48 minutes for each pound or *internal temperature*, 170° F.

If necessary, brown the meat at 500° F. Serve the roast on a hot platter. Gravy may be made as directed on page 367.

SUMMARY

Meat is chiefly that muscle tissue of animals which is used for food, such as beef, veal, mutton, lamb, and pork. *Muscle* consists of fibers, held together by connective tissue. Muscles that are *used most* are the *toughest*. Muscles become tougher as an animal *matures*.

Composition of meat:

Proteins of excellent quality — about 20%

Mineral matter, including phosphorus and iron — *very little* calcium

Fat not only around the muscles, but sprinkled through the lean part

Vitamins — some vitamins B and G (see Note 1, page 37)

Flavoring materials called *extractives*

Water

Characteristics of tender cuts of meat:

Connective tissue is more tender than that in tough cuts.

Contain less flavoring materials or extractives than tough cuts.

Cost more than tough cuts.

May be cooked quickly in dry heat.

Characteristics of less tender cuts of meat:

Connective tissue is tough.

Contain more flavoring materials or extractives than tender cuts.

Cost less than tender cuts.

Require long cooking in moist heat to make tender.

Less tender cuts may be chopped and cooked quickly in dry heat.

Points in buying beef:

Fat — pale cream or white, not yellow

Grain — fine-grained, smooth meat is more tender than stringy coarse meat

Bone — young animals have light pink, fine-grained bones, older animals have gray, coarse-grained bones. Large amount of bone in a cut means much waste.

Methods of searing:

Browning in an uncovered pan in a hot oven

Browning in fat in a frying pan on the surface burner

Adding boiling water and cooking at boiling temperature until outside of meat has lost its red color

Methods of cooking less tender cuts of meat:

Chopping meat, then *panbroiling* or *roasting*

Braising — searing meat, then adding small amount of water, covering pan, and baking in the oven

Pot-roasting — searing meat, then adding small amount of water, covering, and cooking on top of the stove

Methods of cooking tender cuts:

Broiling — heating over hot coals or directly underneath a gas burner

Panbroiling — heating in a hot greased frying pan. There should be no grease accumulated in the bottom of the pan.

Roasting — baking at a low temperature in an uncovered pan. Add no water. The meat may or may not be seared.

TIME TABLE FOR ROASTING BEEF

Sear, if desired, *before or after baking*, in *very hot oven* — 500° F. — 20-30 minutes.

Bake uncovered in *hot oven* — 300° F. (350° F. for small roasts)

Rare — 18-32 minutes for each pound. (*Internal temperature*, 140° F.)

Medium — 22-45 minutes for each pound. (*Internal temperature*, 160° F.)

Well-done — 27-48 minutes for each pound. (*Internal temperature*, 170° F.)

TIME TABLE FOR BRAISING BEEF

Sear in *very hot oven* — 500° F. — 20-30 minutes.

Bake covered, water in pan, 30 minutes for each pound at the following temperatures:

Less than 6 pounds at 300° F.

6 to 9 pounds at 275° F.

Over 9 pounds at 250° F.

TENDER CUTS OF BEEF

<i>Steaks</i>	<i>Roasts</i>
Sirloin	Prime rib
Porterhouse	Sirloin
Club, Delmonico, T-bone, or minute	Porterhouse

LESS TENDER CUTS OF BEEF

<i>Steaks</i>	<i>Roasts</i>	<i>Stews, Soups</i>
Round	Rump	Hind shank
Flank	Round	Flank
Skirt	Chuck rib	Navel
Shoulder	Chuck	Brisket
	English cut, Boston cut, or crosscut	Neck
		Foreshank

REVIEW QUESTIONS AND EXERCISES

Answer each of the following questions with one or very few words. Without copying the questions, write the answers on a piece of paper or in your notebook. Number the answers as the questions are numbered.

1. What fraction of a beef consists of tender cuts?
2. How many servings of meat should most persons eat daily?
3. How many servings in a pound of round steak?
4. From what quarter of beef are chuck rib roasts cut?
5. From what quarter of beef is the rump cut?
6. How many flank steaks are there in a beef?
7. Which cuts of meat — tough or tender — contain more flavoring materials?
8. What is another name for flavoring materials found in meat?
9. In what kind of heat — moist or dry — should unchopped tough cuts be cooked?
10. Which is more tender — top or bottom round?
11. Does a five-pound roast weigh five pounds after roasting?
12. If meat is cooked in water and it is desired to prevent it from being dry and tasteless, should it be cooked at boiling or simmering temperature?
13. Does searing keep in meat juices?
14. Does meat covered with fat need basting?
15. What is the color of the fat of good beef?
16. What method of cooking in the oven is suitable for prime-rib cut?
17. What method of cooking in the oven is suitable for chuck-rib cut?
18. In what vitamin is meat muscle lacking?
19. In what important element is meat muscle practically lacking?
20. From what quarter of beef is the brisket cut?
21. What is a rib roast, from which the bone is not removed, called?
22. What percentage of porterhouse cut is bone?

HOME WORK

1. If you are not in the habit of buying meat, perhaps your mother will permit you to buy some so that you may learn more about how to select it.

When you buy meat, think of the reasons (1) why you are selecting that cut rather than another; (2) why you consider the cut you buy of

good quality. Notice the shape of the cut, the amount of fat and bone, and the shape of the bone.

Fill out the following table on meat buying and give it to your teacher.

NAME OF CUT	REASON FOR SELECTING CUT	POINTS INDICATING DESIRABILITY OF CUT	SHAPE OF CUT AND OF BONE IN CUT (Make a drawing)	PRICE A POUND

Pupil's name: *Date:*

2. Cook meat, preferably one of the less tender cuts, one or more times during the week.

CHAPTER XXVII

MEAT SOUPS AND LEFT-OVER MEAT DISHES — VEAL, LAMB, MUTTON, PORK, LIVER

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Is meat broth as nourishing as solid meat?
2. Does meat left from soup making contain nourishment?
3. Why should pork be well cooked?
4. What is a loin chop?
5. What is soup stock? How may it be prepared?
6. Why is liver considered a good food?
7. How much fat is contained in the so-called lean part of pork?
8. From what part of the animal do veal cutlets come?
9. How does the bone of lamb differ from that of mutton?
10. What use can be made of bone cut from a piece of meat?

What kind of meat should one buy for soup? Why should we always ask the butcher for the bone if he has trimmed one from the meat we buy? First of all the customer has a right to the bone because both the meat and the bone are weighed. The customer pays for the bone. The second reason is that the bone is useful in making meat broth or *soup stock*.

When bone is cooked for a long time in water a substance in the bone changes into *gelatin*. The gelatin then dissolves in hot water and, of course, is present in soup stock.

Buying bones to make soup is not thrifty. Bones left from roasts, steaks, chicken, and ham should be used for soup making. Not only the bones but the scraps and tough parts of meat trimmed from the more tender cuts should be added to the stock pot.

Soup stock tastes good when meat in addition to bone is used in preparing it. It is, however, poor economy to buy soup meat and use the meat merely for soup making. Only a small amount of nourishment is dissolved in water in which meat is cooked. *Most of the nourishment remains in the solid meat.* If meat used in preparing soup stock is utilized in making meat dishes, the buying of meat for soup is economical.

In buying meat for soup making, tough cuts should be selected. Both the front and the hind shank of beef are good cuts for making soup. (See Figure 103, page 352.) The neck also is a good soup cut. The shank of veal (see Figure 116, page 381) is often used for making soup. If this cut is cooked for a long time, much gelatin is formed. Meat broth containing gelatin is desirable.

How is meat stock made? In making meat broth or stock, we used to *soak* meat in cold water before cooking. Now we know this is unnecessary.

We learned that meat tastes good when it is browned. We also like the color of browned meat. To give soup made from meat broth a good taste and darker color, we usually brown part of the meat used for soup making.

MEAT STOCK

2 pounds meat and bone

5 peppercorns

2½ teaspoons salt

Fresh or dried celery leaves

2 quarts cold water

Remove the meat from the bone and cut it in small pieces. Remove the marrow from the bone and any fat there may be from the meat.

In a frying pan, put the marrow and other fat. Heat the fat so that some of the meat can be browned in it. Brown about a third of the meat in the fat. The meat should be browned until it is dark, but care should be taken not to burn it.

Put the bone and both the browned and the uncooked meat in a kettle. Add the *cold* water and seasoning materials. Then gradually heat the meat mixture. Let it cook slowly (at a simmering temperature) for about 3 hours.

Strain the stock through a *coarse* wire strainer. Put it in a sterilized container, cover tightly, and let it stand until cool. Then place in the refrigerator or other cool place. The advantage of letting meat stock cool before using it is to remove the fat from the stock. The fat rises to the top of the stock. When the stock becomes cold, the fat solidifies. It can then be skimmed from the stock. The fat removed from soup should not be wasted. It may be used for browning meats and other foods and in other ways.

How is vegetable soup made from meat stock? Although meat stock is strained, small bits of meat and other materials pass through a coarse wire strainer. These small bits of solid material are desirable because they contain nourishing substances.

VEGETABLE SOUP

1 carrot, medium-sized	$\frac{1}{2}$ cup celery cut in small pieces or
1 turnip, medium-sized	celery leaves — fresh or dried
$\frac{1}{2}$ onion	$\frac{1}{2}$ cup tomato
4 tablespoons suet or other fat	3 tablespoons rice or other cereal
2 quarts meat stock	Seasoning, if needed

Wash the vegetables. Remove the skins from the carrot, turnip, and onion. Cut the carrot and turnip into cubes or other shapes. Cut the celery and onion into small pieces.

Brown all vegetables except celery and tomatoes in the fat. Then add the meat stock, celery, tomato, and rice. Cook until the vegetables and rice are tender. Add seasoning if needed. Serve hot. Yield: 6 servings.

Variation. — This soup may be made *without meat stock*. Use water instead. Use butter in place of suet. Browning the vegetables in butter will give a pleasing flavor. However, if a meat flavor is desired and meat stock is not used, 3 bouillon cubes may be added to the hot soup mixture. The bouillon cubes should be added after the vegetables are cooked. If the recipe for vegetable soup is made without meat stock, 1 tablespoon of salt will be needed.

How can soup meat be used? Meat from which soup has been made has lost *much of its flavor* but *little of its valuable proteins*. Because the meat contains nourishment, it is wasteful to throw it away.

Food should not only nourish the body, but taste good. How can meat used for making soup be made to taste good? The answer to this question is: Combine it with other foods which have a good taste. Bacon has a good taste. Onions have a decided flavor. Parsley is also a good flavoring material. These foods are all suitable to use with cooked meat. They are merely suggestions. There are, of course, many other foods having a pronounced flavor that may be used with left-over meats. A recipe for making a delicious dish from meat used for soup making or other left-over meat follows:

MEAT PATTIES

2 cups chopped cooked meat	$\frac{1}{2}$ grated or scraped onion
$\frac{1}{8}$ teaspoon pepper	2 eggs, beaten
Salt, if needed	1 tablespoon chopped parsley
6 thin slices of bacon	

Mix together all the ingredients except the bacon. Shape the mixture into 6 cakes. Around each cake put a slice of bacon. Fasten the strip of bacon with a toothpick. Place the cakes in a shallow pan. Set the pan in a *hot oven* — 450° F. Let the cakes bake for 15 to 20 minutes, or until the bacon is browned. Place the cakes or patties on a hot platter. Remove the toothpicks. Garnish with parsley. Serve at once. Yield: 6 servings.

Why should vegetables be eaten with meat? If much meat is eaten, vegetables are likely to be neglected. It is very important to eat vegetables with meat. We have acquired the habit of eating butter with bread. We should make it a habit to eat vegetables with meat. To be sure, meat and potatoes are very often eaten together. It is all right to eat potatoes with meat provided other foods are added. Let us see what foods we need to eat with meat.

We learned that meat was lacking in calcium and in vitamin C. Meat lacks also carbohydrates. From this we can readily understand that foods containing calcium, vitamins A

and C, and carbohydrates, including cellulose, should be eaten with meat.

Potatoes supply carbohydrates, some calcium, and vitamin C, but they contain very little vitamin A. Other foods need to be used with meat and potatoes to supply vitamin A and more calcium. Milk furnishes both vitamin A and calcium. You will remember that milk has been proved to be the best source of calcium. (See page 268.) A combination of meat, potatoes, and milk makes a good group. There are vegetables other than potatoes which along with milk make good additions to meat. Dr. Mary Swartz Rose, who is an authority on diet, says: "It should be borne in mind that meat needs supplementing always by milk and vegetables to give the calcium and vitamins which it lacks."¹

What are meat extenders? We have learned two very important facts about meat: (1) only a small amount of meat is necessary, and (2) milk and vegetables should be used with meat.

It would seem then that dishes in which meat is combined with vegetables and milk would be very desirable. In such dishes, less meat is used than when meat is served in the form of roasts and steaks. Vegetables take the place of part of the meat. They are said to extend the meat. Dishes containing meat and vegetables or cereals are called *meat extenders*. Meat extenders are usually economical dishes. Let us learn how to prepare a meat extender:

BEEF STEW

1 pound beef, cut into pieces	2 cups carrots, cut into cubes
3 tablespoons flour	2 cups turnips or rutabagas, cut into cubes
1 onion sliced	2 cups celery cut in small pieces
1½ quarts hot water	2 cups potatoes, cut into cubes
2 teaspoons salt	

¹ From page 420 of *The Foundations of Nutrition* by Mary Swartz Rose, by permission of the Macmillan Company, publishers.

One of the tough cuts should be used for stew. Have the butcher cut the meat into small pieces.

Remove the fat from the meat. Heat the fat in a frying pan so the meat may be browned in it. Add the onion to the fat. Sprinkle the flour over the meat. Brown the floured meat and onion in the fat. Then cautiously add the hot water. Cover the meat and cook at simmering temperature for 2 hours or more. The meat may be cooked on top of the stove in the frying pan. It is well to place an asbestos mat underneath the pan. Another way to cook the meat is to place it in the oven in a covered pan. If a heat-regulated oven is used, set the temperature at $275^{\circ} F$. Use only 1 quart water when the meat is cooked in the oven. If the meat is very tough, it may need to cook longer than 2 hours.

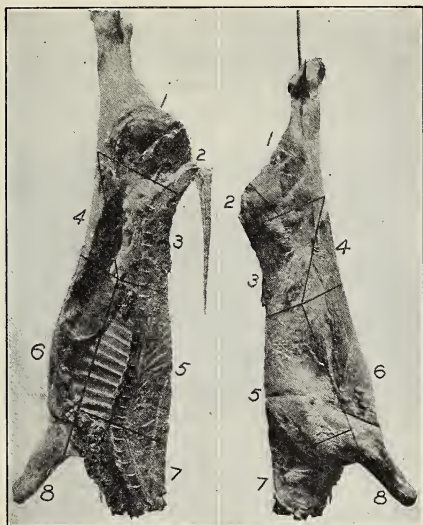
Add the salt and vegetables except the potatoes to the meat and cook for about $\frac{1}{2}$ hour. Then add the potatoes and cook until the latter are tender.

If it is desired to have the stew thicker, thicken it with 2 tablespoons of flour as directed for gravy on page 369. Serve hot. Yield: 9 servings.

What are the characteristics of veal? Veal is the meat of a calf about two months old. Because the animal is young, veal differs in color and flavor from beef. Veal is lighter in color than beef. It is dull pink. Good veal is firm. If too young an animal is used, the flesh is flabby. Veal does not have so pronounced a flavor as beef. It is thought to be more difficult to digest than beef.

What are the cuts of veal? Most of the leg of veal is cut into steaks. (See Figure 116, section 1.) The steaks cut from the leg of veal correspond to the round steaks in beef. They are called *veal cutlets*. (See Figure 117.) Veal cutlets have, of course, a round bone smaller than that of the round of beef. These steaks are more tender than round steaks and usually cost more. The upper part of the leg of veal, similar to the rump of beef, is used for roasting. (See Figure 116, section 2.) Meat from the leg of veal is considered one of the choice cuts.

By studying Figure 116 you will notice that some of the cuts of veal are named differently from the corresponding cuts of beef.



1. Leg
2. Rump
3. Loin
4. Flank
5. Ribs
6. Breast
7. Shoulder
8. Fore shank

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FIGURE 116. CUTS OF VEAL

Veal is cut into quarters as beef is, but, since the animal is small, it is not cut into so many pieces as beef.

The loin (3) is cut into roasts or slices as in beef. However, instead of calling the slices steaks, we call them *chops*. Since these cuts are from the loin, they are called *loin chops*.

The rib section (5) is cut into either roasts or chops. These chops are called *rib chops*. A pound of rib veal chops contains about four chops.

How is veal cooked? As in beef there are some cuts of veal which are successfully broiled or roasted. Meat from the loin or rib sections is suitable for these methods of cooking.

The leg, chuck, and other cuts need to be braised or stewed to make them palatable. When veal cutlets are cooked only slightly, the meat is difficult to chew. It seems to be elastic, somewhat like rubber. This is because the *connective tissue* in veal has not been cooked long enough to convert it



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A B C
FIGURE 117. CUTS FROM THE LEGS OF LAMB, VEAL, AND BEEF

A, leg o' lamb; B, veal cutlets; C, beef round.

The differences in size of these steaks indicate somewhat the differences in size of the animals from which they are cut.

into gelatin. When veal is well cooked, it is very tender. Veal cutlets should not be broiled or pan broiled. One of the best ways to cook this cut of veal is to brown the meat in fat and then add water and cook it at simmering temperature for at least $1\frac{1}{2}$ hours.

Because veal is not pronounced in flavor, it is well to add flavoring materials to it. Veal does not contain so much *fat* as beef. Salt pork added to veal not only gives it a good taste but supplies fat. In the recipe for veal birds which follows, a stuffing is used which contains both flavoring materials and fat.

Veal birds are very delicious. They make a good "company" dish; they also are suitable for a family meal. Veal cutlets are expensive by the pound, but there is little waste.

VEAL BIRDS

1 pound veal cutlets, sliced very thin	$\frac{1}{2}$ onion
1 egg	1 tablespoon lemon juice
1 teaspoon salt	$\frac{3}{4}$ cup soft bread crumbs
$\frac{1}{2}$ teaspoon celery salt	$\frac{1}{3}$ cup flour
3 dashes pepper	2 tablespoons butter
$\frac{1}{8}$ teaspoon thyme	$\frac{3}{4}$ cup boiling water
2 ounces salt pork	$\frac{3}{4}$ cup milk

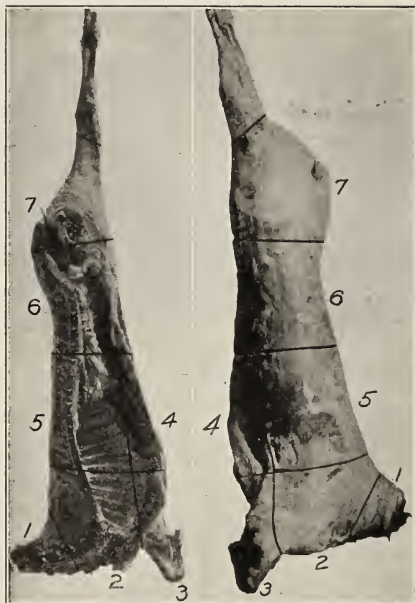
Wash the meat. Cut the bone and fat from the meat. For this dish, veal should be sliced thin. If the butcher has not so cut it, place the veal on a board and pound it with a wooden potato masher. Cut the veal into 6 pieces as nearly square and as nearly equal in size as possible.

In a bowl, beat the egg slightly. Add the dry seasoning materials to it. Put the salt pork and onion through a meat chopper. Add these chopped materials to the egg mixture. Then add the lemon juice and bread crumbs. Divide this stuffing mixture into 6 portions. Place a portion on each piece of veal. Fasten together the four corners of each piece of veal by sticking a toothpick through them. Sprinkle the flour over the pieces of stuffed veal, *i.e.*, the veal birds.

In a frying pan, put the fat trimmed from the veal. Heat the fat until it is freed from the tissue which holds the fat together. Add the butter to the hot fat. Then brown the floured veal birds in the fat. If all of the flour does not stick to the meat, pour the remainder into the frying pan while the meat is browning. Stir the flour to mix it with the hot fat. (This extra flour is needed to thicken the liquid in which the meat is to be cooked so the gravy surrounding the meat will be of proper thickness for serving.)

After the meat is well browned, carefully add the boiling water and the milk. Cover the meat and cook it at simmering temperature on top of the stove or cook it in a moderate oven (275° F.) for $1\frac{1}{2}$ hours or until the meat is tender. If it is cooked on top of the stove, it may be necessary to add more liquid. When the meat is ready to serve, the gravy around it should be of proper thickness. Yield: 5 medium servings

What are the characteristics of mutton and lamb? Mutton is the meat obtained from sheep. Lamb is obtained from the young sheep. Just as veal is usually more tender than beef, so lamb is more tender than mutton. Lamb is preferred to mutton not only because it is more tender, but because it has a more delicate flavor. Mutton is cheaper than lamb.



1. Neck
2. Shoulder
3. Fore shank
4. Breast and flank
5. Rib
6. Loin
7. Leg

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FIGURE 118. CUTS OF LAMB

In selecting lamb at market one should know how lamb and mutton differ in appearance. Lamb is light dull pink. Mutton is darker. Although the flesh of lamb is lighter in color than

that of mutton, the bone of lamb is deeper in color. Lamb bones are pinkish, while mutton bones are almost colorless. The bones of lamb are also softer than those of mutton.

What are the cuts of lamb and mutton? There are no lamb or mutton steaks. The rib, loin, and shoulder are cut into either



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A B C D E

FIGURE 119. LAMB CHOPS

A, loin chop; B, rib chop; C, "Frenched" rib chop; D, shoulder chop (rib end); E, shoulder chop (lower or shank end).

The *loin* chops correspond to the porterhouse steaks of beef. Notice the T-shaped bone. There is less waste in loin chops than in rib chops.

When the strip of lean cartilage and fat are cut from the end of the rib chop, leaving the end of the bone bare, the chop is said to be "Frenched." For occasional serving, a paper frill may be placed over the end of the bone.

A *roast* may be cut from each side of the rib section and each rib bone Frenched. The two circular rib sections may then be fastened together, rib side out and rib ends up. This forms a *crown roast* of lamb.

The *shoulder* chops are not so fine as either the loin or the rib chops. However, the chops cut from the rib end are more tender than those cut from the side near the fore shank. (See Figure 118, 2.)

roasts or chops. From the loin (6) the *loin chops* are cut; from the rib (5), the *rib chops*; and from the shoulder (2), the *shoulder chops*. (See Figures 118 and 119.)

How are lamb and mutton cooked? Mutton is cooked very much as beef. Mutton fat cannot be used in making gravy as is

beef fat. The fat of mutton has a strong taste. Formerly we thought it best to remove the pink skin and membrane underneath the skin called the *fell* before cooking mutton or lamb. Now we know that *removing the fell produces no better flavor*.

Lamb is roasted very much as tender cuts of beef. Although lamb is more expensive than mutton, there are some cuts of lamb that are inexpensive. The breast of lamb makes an inexpensive and satisfactory roast.

Fruits make a good accompaniment for meat. Pineapple with lamb is especially appetizing. Cooking fruits with meats helps make a pleasing variety.

ROAST BREAST OF LAMB WITH PINEAPPLE

Roast the breast of lamb in an uncovered pan. See temperature and time, page 390.

Ten minutes before the roast is finished baking put slices of canned pineapple around and on top of it. Baste the fruit with the meat broth. Continue baking 10 minutes. Place the meat on a hot platter with slices of pineapple around it. Serve with the following *pineapple-mint sauce*:

$\frac{1}{2}$ cup sirup of canned pineapple	$\frac{1}{4}$ cup chopped mint leaves
1 tablespoon vinegar	$\frac{1}{4}$ teaspoon salt

Mix these ingredients. Let the mixture stand in a warm place $\frac{1}{2}$ hour.

What are the characteristics of pork? When all the visible fat is cut away from pork, the so-called lean pork is almost a third fat. One of the chief characteristics of pork is its large amount of fat. Because pork contains so much fat, it is considered more difficult to digest than beef or mutton.

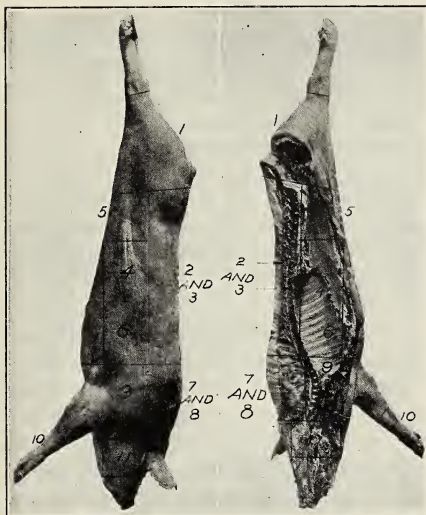
Certain cuts of pork are cured, *i.e.*, treated with salt and other substances and smoked. Ham and bacon are cured pork.

What are the cuts of pork? Because of the large amount of fat in pork and because some parts are cured and salted, the names of the cuts of pork differ somewhat from those of other animals, as shown in Figure 120.

How is pork cooked? As mentioned on page 351, meat is sometimes diseased. If the meat is government-inspected,

diseased pork, of course, is not allowed to be sold. However, all pork is not inspected. It is well to cook pork thoroughly. Pork should never be eaten rare.

If pork chops are cooked on the surface burner, they should be browned first. Because of the large amount of pork fat, no fat



1. Ham
2. Fat-back
3. Loin
4. Bacon
5. Flank bacon
6. Spareribs
7. Clear plate
8. Boston butt
9. Picnic shoulder
10. Hock
11. Jowl

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FIGURE 120. CUTS OF PORK

When the leg of pork (1) is cured, it is known as *ham*. The shoulder (9), cured, is called *picnic shoulder*. The fatty sections (4 and 5) also are cured and sold as *bacon*. Section 7, salted, is known as *salt pork*. The *spareribs* (6) are the lower part of the rib bones and the breast bone. Although there is very little meat on these bones, what there is is delicious.

needs to be added to the frying pan. After browning the surface, it is well to add *carefully* a few tablespoons of water. Then cover the pan and allow the pork to steam.

Roast pork may be cooked in the oven in an uncovered pan the same way as the tender cuts of beef (see page 370), except that it is always roasted until well done. On page 390, the time and temperature for cooking pork in the oven are given.

Chops also may be successfully cooked in the oven. A recipe for baking pork chops with a bread dressing follows:

BAKED PORK CHOPS

1 egg	$\frac{1}{2}$ onion, chopped
1 teaspoon salt	3 cups soft bread crumbs
$\frac{3}{4}$ teaspoon celery salt	6 pork chops
1 green pepper, chopped	3 tablespoons water

Beat the egg. Add the seasonings, pepper and onion. Mix well. Then add the bread crumbs and mix.

Place the pork chops in a baking pan. Put some of the bread mixture on top of each chop. Put the water in the bottom of the pan. Cover the pan. Bake the chops in a moderate oven (300° F.) for $1\frac{1}{2}$ hours. Serve hot. Yield: 6 servings.

Why is liver a good food? Formerly liver was not classed among the wholesome foods.¹ But since liver has been found to contain vitamins, iron, and copper, we should eat it. Liver is believed to contain not only vitamins, copper, and iron but other substances which will help to build the hemoglobin and red cells of blood. Patients suffering from too little hemoglobin and too few red cells in their blood have been benefited by eating liver.² Because liver contains valuable substances and is palatable, we should learn how to prepare it for the table.

Kidney, hearts, and sweetbreads also are nutritious foods. However, liver contains more of vitamin A than do these other organs.

What kind of liver should we buy? Calf's liver is more delicate in flavor and more tender than beef liver. It is also more

¹ See page 74 of *Food, Nutrition, and Health* by McCollum and Becker.

² See page 204 of *The Foundations of Nutrition*, Revised Edition, by Dr. Mary Swartz Rose, The Macmillan Company.

expensive. Beef liver is good, especially if it is chopped before cooking. The liver of pork is tender. It usually costs less than calf's liver. However, pork liver has a stronger flavor than veal or beef liver.

Liver is sliced and sold by the pound. Six medium-sized slices of calf's liver weigh about one pound.

How is liver cooked? Before cooking liver, wash it. If beef liver is used, remove the blood vessels and thin outer skin. According to some recent experimenting, beef liver is improved by soaking at least three or four hours in sour milk or buttermilk, but not in water.

A combination of *bacon and liver* is pleasing. Slices of liver may be rolled in flour and then browned in bacon fat. Hot water may be added to the browned liver and calf's liver cooked at simmering temperature for 10 minutes, and beef liver, about 1 hour. The liver should be served hot. If the liquid in which it is cooked is not thick enough for gravy, it may be thickened (see page 369) and served with the liver.

Chopped liver combined with chopped beef and tomato, and baked in the form of a loaf, is palatable. The recipe follows:

LIVER LOAF

1 egg	$\frac{1}{8}$ teaspoon pepper
$\frac{1}{2}$ cup tomatoes	$1\frac{1}{2}$ cups soft bread crumbs
2 teaspoons salt	1 pound chopped calf's or beef liver
	$\frac{1}{2}$ pound chopped beef

In a mixing bowl, beat the egg. Add the tomatoes, salt, and pepper, and mix well. Add the bread crumbs, liver, and beef, and mix.

Shape into a loaf. Bake in a bread pan or dish in a hot oven — 400° F. — for 30 minutes. Serve at once. Yield: 6 large or 8 medium servings.

SUMMARY

Meat broth may be made from (1) meat or (2) bone.

From the meat flavoring materials, some mineral matter and a very small amount of meat proteins are extracted. Meat left from soup making contains most of the proteins and should not be wasted.

From the bone, gelatin is obtained. There are materials in bone which when cooked are changed into gelatin.

Meat is *lacking in vitamin C* and in *calcium*. Vegetables and milk should be used with meat because they supply materials lacking in meat.

TIME TABLE FOR ROASTING LAMB

Sear before or after baking in very hot oven — 500° F. — 20-30 minutes.
Bake in uncovered pan at 300° F., 30-45 minutes for each pound. No water in pan. (Internal temperature, 175°-180°.)

TIME TABLE FOR "ROASTING" VEAL

Sear in very hot oven — 500° F. — 20-30 minutes.
Bake in covered pan, at 275° F., 25-45 minutes a pound. No water in pan. (Internal temperature, 170° F.)

TIME TABLE FOR ROASTING FRESH PORK

Sear before or after baking in very hot oven — 500° F. — 20-30 minutes.
Bake in uncovered pan at 350° F., 35-50 minutes a pound. No water in pan. (Internal temperature, 185° F.)

CUTS OF VEAL

<i>Steaks or Chops</i>	<i>Roasts</i>	<i>Stews</i>
Leg (cutlets) } Loin chops } choice Rib chops }	Leg } Rump } choice Loins } Rib }	Flank Fore shank
Shoulder chops — less choice	Breast } Shoulder } less choice	

CUTS OF LAMB

<i>Chops</i>	<i>Roasts</i>	<i>Stews</i>
Loin chops } Rib chops } choice Shoulder chops — less choice	Loin } Leg } choice Rib } Breast } and flank } less choice Shoulder }	Breast and flank Fore shank Shoulder Neck

CUTS OF PORK

<i>Steaks, Chops, or Thin Slices</i>	<i>Roasts</i>	<i>Stews</i>
Loin and rib chops	Loin	Hock
Ham, fresh or cured (steak)	Ham, fresh or cured	Spareribs
Clear plate, salted	Spareribs	
Picnic shoulder, cured (steak)	Boston butt	
Boston butt	Picnic shoulder	
Bacon		

REVIEW QUESTIONS AND EXERCISES

Each of the following statements is completed in more than one way. Only one is correct. Read each statement carefully, and choose the correct word or phrase to complete it. Then copy the statement, including only the correct word or phrase.

1. Meat broth contains (a) a large amount of proteins (b) much nourishment (c) flavoring materials.
2. Pork should be cooked (a) well done (b) rare.
3. Meat left from soup making contains (a) most of the proteins (b) much flavoring material.
4. Liver contains considerable (a) vitamins A and G (b) vitamin B (c) vitamin C.
5. Meat is rich in (a) phosphorus (b) calcium.
6. Milk should be used with meat and vegetables because it is rich in (a) fat (b) proteins (c) calcium.
7. Liver contains more (a) vitamin A (b) proteins (c) fat than does muscle.
8. Proteins of meat are (a) soluble in water (b) only slightly soluble in water.
9. Calf's liver is (a) less expensive (b) more delicate in flavor (c) tougher than beef liver.
10. Chops are cut from the (a) leg (b) chuck of veal.

HOME WORK

1. Prepare some soup containing meat stock, or prepare vegetable soup without meat stock.
2. Prepare some left-over meat.
3. Cook veal, lamb, mutton, or pork.

CHAPTER XXVIII

CHICKEN AND FISH FOR DINNER

Can you answer these questions? If not, look for the answers as you study this chapter.

1. What is the difference between chicken and fowl?
2. Why is chicken expensive food?
3. What is meant by dry fish?
4. What noticeable difference is there in the breast bones of old and young poultry?
5. Why is it especially desirable to serve leafy vegetables with fish?
6. How should fish be stored in the refrigerator?
7. What are milk-fed chickens?
8. Which form of fish — whole fish or fish steak — has more waste?
9. Should oysters be cooked a long or a short time? Why?

Why is chicken more expensive than other meats? When chicken is served there are always many bones left on the plates. There are also bits of skin and gristle left uneaten. When a chicken is dressed, the feathers, head, and feet are discarded as well as a part of the internal organs. It has been estimated that the part of a chicken actually eaten is only about a third of the original weight.¹ Because of the large amount of waste, chicken meat is more expensive than other meats.

Chickens are sometimes bought by live weight. They may also be bought dressed. Dressed chickens have their feathers removed. Other waste parts are sometimes removed. Live chickens cost less a pound than dressed chickens because there is much more waste material. The work of dressing a chicken is also considered in the difference in cost.

¹ See page 273 of *Food Buying and Our Markets* by Monroe, M. Barrows & Company.

Although chicken meat is expensive, it can be combined with other foods. Chicken extenders can be made as well as other meat extenders. Chicken broth is a good flavoring material. Rice flavored with chicken broth is especially palatable. From the fat of chicken, good gravy can be made. Chicken bones can be used for soup. If every part of a chicken that can be eaten and from which flavor can be extracted is used, the occasional purchase of a chicken may be justified even in the average home where economy must be practiced.

What are the differences between chicken and fowl? We speak in general of the bird most commonly used for food as *chicken*. But to the butcher the term *chicken* refers only to a *young* bird. After a bird becomes full grown, the butcher calls it a *fowl*. Chickens are, of course, more tender than fowls. However, a fowl may have a very good taste. If cooked properly so as to make it tender, a fowl may be satisfactory. Since fowl costs less a pound than chicken, fowl rather than chicken may be a thrifty purchase.

In selecting poultry, it is well to learn how to distinguish a chicken from a fowl. The following points should be observed :

1. *Size* — A fowl weighs from 4 to 6 pounds. Full-grown chickens may weigh this much. However, very young chickens, commonly called *broilers*, do not weigh so much. The size or weight may indicate the difference between a broiler and a fowl, but not between an older chicken and a fowl.

2. *Pinfeathers and hairs* — A chicken's skin is usually covered with pinfeathers and a fowl's skin with hairs.

3. *Feet* — A chicken has smoother feet than a fowl. There are usually scales on the feet of the more mature bird.

4. *Breast bone* — A young bird has a flexible breast bone. This is because there is cartilage on the end of the immature bone. In feeling of the end of the breast bone one should determine whether the bone can be easily bent because of the cartilage.

What makes some chickens taste better than others? Even though two chickens are of the same age and cooked in the

same way, one may taste much better than the other. There are several reasons why one chicken may have a better flavor than another.

1. *Time of keeping after killing* — Some chickens are sold as soon as killed. Others are kept in *cold storage* for some time. The *fresh-killed* chicken has a better taste. To be sure, a cold-storage chicken properly kept may be as wholesome as a fresh-killed bird. Its chief drawback is its flavor.

2. *Kind of food* — The kind of food fed to a chicken affects the flavor of the meat. A chicken which has been fed *buttermilk*, *cornmeal*, and *wheat* has a fine flavor. At market chickens fed on these foods are known as *milk-fed chickens*. If one wants to buy a chicken of especially fine taste, it is well to inquire whether or not the chicken is milk-fed.

Why do some chickens keep better than others? Another point to consider in buying chicken is the way the feathers were picked. Feathers may be removed by pouring boiling hot water over the chicken, then picking the feathers. Feathers may be removed also by picking without first scalding. Scalding a chicken makes the skin more easily broken. When this happens, the chicken does not keep so well. Chickens picked without scalding are known as *dry-picked*.

The internal organs of a chicken must be removed before cooking. All organs are then discarded except the liver, heart, and gizzard. Removing the internal organs is known as *drawing* a chicken. The question arises, when should a chicken be drawn — immediately after killing or shortly before cooking? It has been found that chickens keep better when they are drawn just before they are to be cooked. If chickens are drawn at the market, they should not be drawn until just before they are delivered to a customer.

How should chicken or turkey be dressed and roasted? Since poultry is a kind of meat, it is cooked very much like other meats. The methods of cooking tender cuts of beef can be used in cooking broilers and older chickens. The methods of cooking tough cuts may be applied to fowl.

Before poultry is cooked, it must be carefully cleaned and prepared for cooking. Directions for cleaning follow:

Cleaning Poultry. — The *hairs* on poultry should be removed. This is done by *singeing* the bird. Hold it over a gas flame so that the flame strikes all parts of the skin. Poultry may be singed also by holding it over burning paper.

In case there are *pinfeathers*, remove them with the point of a knife or with a strawberry huller. If the butcher has not cut off the *head* of the bird, this should be done. Then the *neck* should be cut off. However, if the poultry is to be stuffed, it is well not to cut off the skin covering the neck. Loosen the skin from the flesh and bone of the neck, pull the skin back and cut off the neck close to the body. Take out the *wind pipe* and *crop*. Cut the *oil bag* from the tail.

Poultry must be drawn if the butcher has not already done it. The way poultry is drawn depends upon whether it is to be left whole for roasting or cut into pieces before cooking. Directions for the different ways of drawing fowl are given with the method of cooking.

Since only tender meats are suitable for roasting, only chickens or young turkeys are suitable for baking in an uncovered pan. However, a fowl may be roasted, in a covered pan. A longer time is required for roasting a fowl than a chicken.

Drawing Poultry for Roasting. — After the skin of poultry is cleansed, it may be drawn as follows: (When drawing poultry, protect the table or meat board by covering it with a piece of paper.)

Cut through the skin and flesh of poultry under one of the legs. An incision may be made also at the vent, leaving a strip of skin above the vent.

Loosen the organs carefully. Great care must be taken not to break the *gall bladder*, which lies under the liver. Even a small amount of gall will make the poultry taste bitter. After loosening the organs, remove them, cutting all around the vent.

The *intestines*, *gizzard*, *heart*, and *liver* should be removed together. The *lungs* lying in the hollow of the back bone must be carefully removed.

Now clean the bird by washing it carefully inside and out.

Cleaning the GIBLETS. — The *giblets*, *i.e.*, the liver, gizzard, and heart, should be prepared for cooking as follows:

Cut the gall bladder from the liver, again taking care not to break or cut into it. Remove the intestines from the other organs. Cut the tough membrane from the heart. Inside the gizzard there is a sack which must be removed. To do this, cut through the flesh to the skin surrounding the sack. Then loosen the gizzard from the sack. Around the flesh of the gizzard there is a coating of tough membrane. It is well to cut away this membrane.

Stuffing Chicken or Turkey. — Chicken or turkey is usually stuffed with a bread mixture. Stale bread crumbs are used as the basis of the stuffing. Many different materials and seasonings may be added to the bread crumbs. The following recipe for stuffing may be varied by the addition of different seasoning or herbs and other ingredients:

STUFFING

1 quart ¹ soft (not fresh) bread crumbs	Dried herbs (1 teaspoon ground sage or mixture of $\frac{1}{2}$ teaspoon each of marjoram, savory, and thyme)
$\frac{1}{8}$ teaspoon pepper	
2 teaspoons salt	
	$\frac{1}{4}$ cup butter

Mix the crumbs, seasoning, and herbs together. In a frying pan or saucepan, melt the butter. Add the crumbs. Stir and heat until the crumbs are slightly browned.

Put the stuffing inside the poultry. Hold the stuffing in place by sewing up the incision. The incision may be closed also in this way: Hold the edges of the skin together and thrust toothpicks across the opening

¹ This quantity of stuffing is sufficient for a roast chicken. For a roast turkey, use at least twice this quantity.

through both edges of the skin. Then wind or *lace* string around the toothpicks, thus closing the opening.

Stuffing may be put through the incision near the leg or in the opening at the neck. The skin left at the neck may be folded over and pinned with a skewer to hold the stuffing in place as shown in Figure 122, page 398.

Variation. — If moist dressing is desired, $\frac{2}{3}$ cup of *hot water* may be added to the crumbs. An egg also may be added. Beat the egg and mix it with the other ingredients.

Trussing Chicken or Turkey. — If a chicken or turkey is roasted with the wings and legs extending from the body, these parts are baked too hard and become dry. In order to prevent this, the wings and legs should be held close to the body during baking. This may be done by means of skewers and string. *Fastening the legs and wings to the body by means of skewers and string is called trussing.* Insert a skewer through the fowl just underneath the legs. Then thrust another skewer through the wings and breast. Continue as shown in Figures 121 and 122.

Baking Chicken or Turkey. — Roast chicken or turkey need not be seared as are other meat roasts. Place the trussed poultry in an uncovered roasting pan provided with a rack. Rub the skin of the bird with fat or vegetable oil. Flour may also be sprinkled over the surface.



FIGURE 121. STEPS IN TRUSSING A CHICKEN OR TURKEY

1. Tie the ends of the legs together, leaving both ends of the string long.
2. Tie the legs to the tail.
3. Wind the ends of the string around the ends of the skewer beneath the legs.
4. Cross the ends of the string over the back and wind them around the ends of the skewer stuck through the wings. Tie the ends of the string together.



FIGURE 122. BACK VIEW OF A TRUSSED CHICKEN

Notice that the steps in trussing are indicated by numbers in this view also. The string is stretched across the back only. The breast is thus kept in good condition for serving the bird, breast up. Observe how the stuffing is held in the neck by pinning the neck skin to the shoulder with a small skewer.

The length of time of baking depends upon the weight of the poultry. The giblets and neck should be placed in a saucepan and cooked in water until tender in the oven or on top of the stove. Bake *chicken* and turkey at 300° F., 25 minutes for each pound. If not browned, finish baking at 500° F.

When the poultry is sufficiently cooked, put it on a hot platter, breast up. Remove the skewers and string. Serve hot with gravy.

CHICKEN OR TURKEY GRAVY

4 tablespoons poultry fat or butter	$\frac{1}{8}$ teaspoon pepper
$\frac{1}{4}$ cup flour	2 teaspoons salt
1 $\frac{1}{2}$ cups broth and milk	

If the poultry was very fat, there may be considerable fat in the broth. To make gravy, fat may be skimmed from the broth or butter may be used. It may be that chunks of fat were cut from around the gizzard when the bird was drawn. Such fat may be tried out and used in making gravy.

Prepare as directed for beef gravy, page 367.

If desired, the *giblets* may be chopped and added to the gravy.

How is a chicken or fowl cut into pieces and cooked? After a chicken or fowl is cleaned as directed on page 395, usually the wings and legs are cut off. Then the chicken is drawn and the remainder of the chicken cut into pieces.

In removing the wings and legs, care should be taken to cut through the joints. To do this, cut through the skin and flesh covering a joint. Then bend the wing or leg at the joint. Finally cut through the joint which has been partially broken by bending. Separate each leg at the joint into drumstick and second joint. Sometimes a fowl is separated into pieces by chopping through the bones. By this method, the bones are usually splintered. Small bits of bone make the fowl difficult to eat.

When a fowl is to be cut into pieces, instead of making one small incision through which the entrails are drawn, cut it open on each side between the breast and back and through the ends of the ribs. Then separate the shoulder or neck and breast. Remove the entrails. The giblets should be cut from the entrails as directed on page 396. The lungs should be removed from the shoulder or neck and the kidneys from the back.

Separate the wishbone with the meat on it from the breast. Cut the breast in half, lengthwise. Cut the back in two, cross-wise, making the pieces commonly called back and shoulder or neck.

There should be 12 pieces of fowl besides the giblets. Some of the pieces have much more meat on them than others. The pieces are :

2 drum sticks	2 pieces of breast
2 second joints	1 back
2 wings	1 shoulder or neck (large)
1 wishbone	1 neck (small)

Chicken may be cooked by browning in fat, but unless it is very young it is not sufficiently cooked by merely browning. It usually needs also to be steamed or cooked in water. Fowl requires, of course, thorough cooking.

When chicken or fowl is browned in fat, it tastes better and looks more inviting if it is first dipped in flour.

FRICASSEED CHICKEN OR FOWL

Dredge each piece of chicken or fowl generously with flour. In a frying pan heat chicken fat or butter or both. Brown the pieces of floured chicken or fowl in the fat. Then carefully add enough boiling water to cover the pieces. Add at least 2 teaspoons of salt and several dashes of pepper. Cover and cook on top of the stove at simmering temperature or in the oven at $275^{\circ} F.$ for 2 hours, or until tender.

In testing fowl to determine whether or not it is tender it is well to stick a fork into the second joint. This is one of the toughest pieces.

Fricasseed chicken or fowl should be served with gravy. The recipe for gravy (page 367) may be followed, or gravy may be made by adding a mixture of flour and water to the chicken broth. (See page 369.)

CHICKEN À LA MARYLAND

1 chicken	$\frac{1}{3}$ cup butter
$\frac{1}{3}$ cup flour	1 teaspoon salt
Dash of pepper	

Clean, wash, and cut the chicken into pieces.

In a small bowl, cream the butter, add the other ingredients, and mix. Spread this mixture on each piece of chicken.

Place the chicken on the rack of a roasting pan. Sear at $500^{\circ} F.$, for 20 minutes. Then cover and bake at $275^{\circ} F.$ for 2 hours or until tender. Serve hot with gravy. (See page 367.)

STEWED CHICKEN OR FOWL

Put the chicken or fowl in *boiling* water. Let the water boil for 15 minutes. Then add (for an average-sized bird) 1 tablespoon of salt. Let the chicken continue to cook at a simmering temperature for $1\frac{1}{2}$ to 2 hours, or until tender. Serve with gravy. (See page 367.)

It was mentioned on page 393 that chicken meat could be extended by adding other foods. One of the most popular chicken-extender dishes is *chicken à la King*. For this dish cooked chicken or fowl is taken from the bones and cut into bits. Other foods are added as well as a cream sauce or gravy. Chicken prepared in this way can be served in more portions than when served alone on the bones. The recipe follows:

CHICKEN A LA KING

$\frac{1}{4}$ cup fat — chicken fat or butter	$\frac{1}{8}$ teaspoon pepper
1 tablespoon green pepper	2 cups stewed chicken, cut into pieces
$\frac{1}{3}$ cup flour	1 tablespoon pimienta, cut into bits
$1\frac{1}{2}$ cups chicken broth	2 tablespoons chopped parsley
1 cup milk	1 egg or 2 egg yolks
$\frac{1}{2}$ teaspoon salt	

Heat the fat in a frying pan. Add the green pepper and flour. Stir and cook until the mixture is light brown. Then add the chicken broth, milk, and seasoning. Add these liquids as directed in making white sauce (see page 237), stirring while cooking the mixture. Add the chicken, pimienta, and parsley, and continue to cook until the chicken is heated thoroughly.

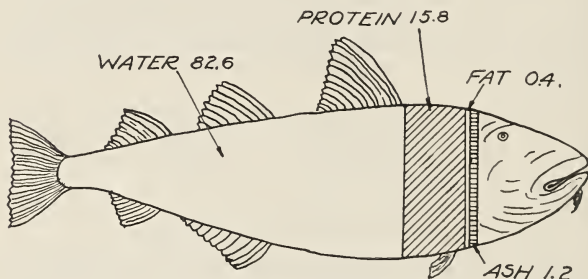
Beat the egg in a bowl. Add a little of the hot chicken mixture. Mix well. Then pour the egg and chicken mixture into the rest of the chicken. Stir and cook until the egg is thickened — usually 3 to 5 minutes. Serve at once.

Chicken à la King may be served on toast or in pastry, patty, or cream-puff shells (page 579). Yield: 8 to 10 servings.

Why is fish eaten less often than meat? Fish, like meat, contains proteins. The proteins in fish are of excellent quality. Why is fish not eaten by most persons as often as meat? There may be several reasons for this. Some of the reasons are: (1) Fish contains many bones. These make some kinds of fish difficult to eat. (2) It has an odor which often clings to the utensils in which it is cooked and to the dishes in which it is served. Special care must be taken in washing the utensils and dishes used with fish so as to remove the odor. (3) Fish does not keep so well as meat.

Although it may have some drawbacks, fish is a wholesome and palatable food. Moreover, it may usually be cooked in a short time. In some places fish costs less than meat. Because improvements have been made in the shipping of foods which spoil readily, fresh fish may be obtained in most places even though they are near no bodies of water. Fish should be used more often than it is by most families.

In what kinds of water do fish live? If you live on or near the Great Lakes you may know the names of some fish. However, you may not know the names of fish which the person living on or near the ocean knows. Although fish live in both fresh water and salt water, the kinds of fish living in the two kinds of water differ. For this reason fish are sometimes classed as *fresh-water fish* and *salt-water fish*.



Redrawn from U. S. Department of Agriculture Chart

FIGURE 123. COMPOSITION OF FRESH COD (A DRY OR LEAN FISH)

Dry fish are so called not because they contain little water, but because they contain little fat. Notice that the cod is only 0.4% fat. Compare the percentages of protein and water with those of beef. (See Figure 102, page 349.) Vitamins: A — to +, B +, C*, G + (see Note 1, page 37).

Some other dry or lean fish are *pike*, *haddock*, and *brook trout*.

There are so many kinds of fish, that it is perhaps not worth while to try to learn about all kinds. However, if you live near a body of water, you should know what kinds of fish live in that body of water. You will then know whether the fish you buy has been obtained near your home or shipped a great distance.

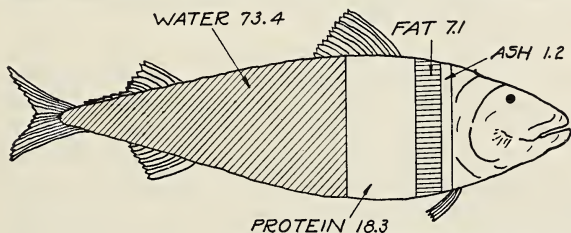
Are fish alike in composition? Study carefully Figures 123 and 124.

What are some points to notice when buying fish? In buying fish, it is most important to know whether or not the fish is fresh.

It is a serious thing to eat spoiled fish. Illness usually follows. Some points to notice when buying fish are :

1. The *gills* — These should be bright red. In old fish the gills become pale.
2. The *eyes* — These should be bright and bulging.
3. The *firmness of the flesh* — The flesh should be not only firm but elastic. When the flesh is pressed with the fingers, it should spring back into place. Finger prints should not be left in the flesh. However, there are some kinds of fish whose flesh is soft even when fresh.
4. The *odor* — Although fish has a pronounced odor, the odor of fresh fish is very different from that of decayed fish.

Fish varies in cost. Comparing the costs by the pound of different fish does not always indicate the true difference in cost.



Redrawn from U. S. Department of Agriculture Chart

FIGURE 124. COMPOSITION OF FRESH MACKEREL (A FAT FISH)

Notice that this fish contains almost 18 times as much fat as cod. Certain fat fish contain more fat than mackerel. *Salmon* contains 17.8%, almost as much as beef steak. Vitamins: A+, B+, C*, G+ (see Note 1, page 37).

Some other fat fish containing more than 5% fat are *lake* or *salmon trout*, *shad*, *pompano*, *herring*, *whitefish*, and *halibut*.

There is much more bone and other waste in some fish than in others. In general, it has been found that fish steaks have less waste than large whole fish and that small whole fish have less waste than large whole fish. Hence, not only the cost a pound but the amount of waste should be considered in buying fish.

Are frozen fish objectionable? Because fish spoils so quickly, it must be frozen if kept for any length of time. Fish that is to be shipped is frozen. Fresh fish cooked immediately after being caught is thought to have a finer flavor than frozen fish. However, fish that is frozen quickly by modern commercial methods and kept frozen until cooked has a fine flavor and good texture. If frozen fish is bought at market, be sure to keep it in a frozen condition until you are ready to cook it. Thaw fish out by soaking it in cold water. Fillets may be cooked without defrosting.

What foods taste good with fish? You will remember that the extractives in meat give the latter its flavor. Fish is lacking in extractives. For this reason foods of pronounced flavor taste good with fish. Tomatoes and lemon are especially good with fish because of their acid taste.

Lemon may be used for garnishing fish. When the fish is eaten, the juice should be pressed from the piece of lemon and eaten with the fish. There are several tasty sauces flavored with lemon which are suitable to serve with fish.

Spinach, uncooked cabbage, and other leafy vegetables taste good with fish. It is especially desirable to serve tomatoes and leafy vegetables with fish because these foods are needed to supply vitamins in which fish is lacking. Parsley makes a pleasing garnish for fish. Chopped parsley added to a sauce makes a good fish accompaniment.

Some persons believe that it is injurious to use milk with fish. This idea has no scientific foundation. If both the fish and the milk are fresh they may be used together. Do not hesitate to drink a glass of milk when fish is served at a meal.

How should fish be kept and cleaned? Fresh fish must be kept in a refrigerator or other cold place so that it will not spoil. To keep the odor of fish away from butter, milk, and other foods which absorb odors readily, it is necessary to put the fish in a covered container before putting it into the refrigerator. A glass jar, one- or two-quart size, is a good container for fish.

Place the fish in the refrigerator in the coldest place. (See page 174.)

If a whole fish is to be cooked, the scales must all be removed. Although the scales are usually removed at market, it is necessary to go over the fish to make sure that it is entirely free from scales. To do this, place the fish on a table protected with a piece of paper. Grasp the fish by the tail and run the blade of a knife over the skin of the fish, working from tail to head. This should be done several times to make sure not a single scale is left.

At market the entrails are usually removed. However, the inside of the fish should be examined to see that it is perfectly clean. The head and tail may be left on or they may be removed. For baking whole, the head and tail are often left on.

Hold the fish under the faucet to wash it. Wash both inside and outside thoroughly. Do not let the fish stand in water after washing. Drain, wipe dry.

In what utensils should fish be baked or broiled? The appearance of a baked or broiled fish is no small part of its charm. Often a fish is broken into pieces when it is removed from the baking pan. This is because there is less connective tissue in fish than in meat. One of the important things to think about in cooking fish is to select the proper utensil in which to cook it and to prepare it in such a way that the fish is not broken into bits before it reaches the table.

There are several utensils for baking fish which make it easy to serve fish whole. These are :

1. *Oven-glass platter* — The fish may be both baked and served on the platter. A hot-dish mat may be used to protect the table or the glass platter may be placed on top of a china platter.

2. *Baking pan with rack* — If the fish is placed on the rack, it may be lifted out of the pan and the fish slipped from the rack on to a serving platter.

3. *Oak plank* — Broil and serve the fish on the plank.

BAKED FISH STEAK

2 pounds fish steak	$\frac{1}{2}$ cup dried bread crumbs
$\frac{1}{2}$ cup milk	4 tablespoons butter or
1 teaspoon salt	1 ounce fat salt pork

Clean the fish. Add the salt to the milk. Pour the milk into a shallow dish. Dip the fish into the milk, then into the crumbs.

Put half of the butter or pork fat, in bits, in one of the utensils suggested in the previous section. Add the breaded fish. Put the rest of the butter or fat on top of the fish. Bake the fish uncovered in a moderate oven — $375^{\circ} F.$ — for about *30 minutes* or until the flesh separates readily from the bones. Serve hot. Season. Garnish with lemon and parsley. If you wish, serve with mock hollandaise sauce.

Hollandaise sauce consists of a mixture of egg yolks, lemon juice, hot water, and seasoning. It is somewhat difficult to make because the egg may be so easily overcooked.

There is a sauce called mock hollandaise, which is made by adding lemon and egg yolk to white sauce and cooking slightly. This sauce is much easier to prepare than hollandaise sauce and is good. The recipe follows:

MOCK HOLLANDAISE SAUCE

1 cup medium white sauce (see page 246)	2 egg yolks
2 tablespoons butter	2 tablespoons lemon juice

Cook the ingredients for mock hollandaise sauce either over hot water or over an asbestos mat. Add the butter to the white sauce. Heat until the butter is melted.

Beat the egg yolks in a bowl. Add a small portion of the hot sauce to the yolks. Mix well. Add the egg mixture to the remainder of the sauce. Stir and cook just as you did soft custard (see page 317) until the egg is thickened. Add the lemon juice. Serve at once.

What are oysters? Perhaps you have seen an oyster on the half shell or you may have seen an oyster shell from which the oyster has been taken. An oyster is a kind of fish. It differs, however, from the fish about which you studied in the earlier part of this chapter. An oyster is covered with a shell. It is called a *shellfish*. Oysters are found in salt water.

At what time of year should one buy oysters? We think of oysters as a cold-weather food. Like all fish, oysters spoil readily. Although not unwholesome, they are not as plump or as tasty in warm weather as in cold. Hence they are found in market during eight months of the year, from September to April—the months that have the letter “R” in their names.

What kind of oysters shall one buy? At market there are often oysters of different sizes. The smallest oysters are considered the best for serving raw. Oysters to be served raw are often bought and served in the half shell. Such oysters are called *Blue Points*, because they were originally grown in the water of Blue Point, New York.

For frying, oysters of large size are desired. Large oysters of uniform size are sometimes called *select* oysters. For stewing and scalloping, it is well to buy oysters that are intermediate or irregular in size. These are usually cheaper than select oysters.

What are some points to remember in buying oysters? Although oysters grow in the ocean, they are sent to all parts of the country. Because they spoil readily, they must be kept cold. This is usually done by taking oysters out of their shells, washing them, and packing them in containers. The containers are surrounded with ice.

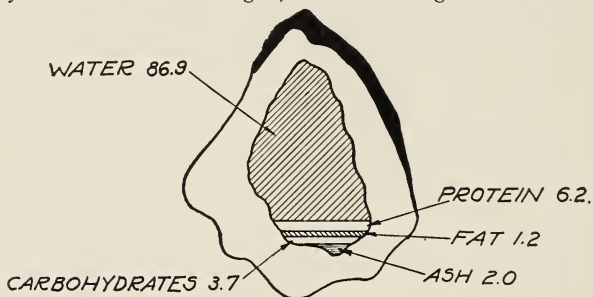
Sometimes oysters are greenish. This color is usually due to the oyster's having fed on vegetable materials. Such oysters are not harmful.

Oysters are usually sold by the pint or quart. Select oysters are sometimes sold by the count. Do not keep oysters very long after they come from market. Keep them in a cold place.

Oysters drink water. Hence it is important that the water in which oysters grow should be free from contagious disease germs and that they should be marketed under sanitary conditions. To protect the consumer, the beds in which oysters grow, the purity of the water, and the packing houses in which oysters are made ready for shipping are inspected by government health agencies.

A government regulation makes it unlawful for a dealer to add water or a chemical preservative to shucked oysters (oysters removed from the shell), or to place them in direct contact with ice.

How are oysters cleaned? Drain off the liquor from oysters. The liquor may be used in scalloped and creamed oysters and in oyster stew. Before using it, strain it through a fine strainer



Redrawn from U. S. Department of Agriculture Chart

FIGURE 125. COMPOSITION OF OYSTERS

Oysters, like milk, are almost four fifths *water*. The percentage of *proteins* in oysters is less than that in fish without outer shell. Unlike meat and other fish, oysters contain *carbohydrates*, almost 4%. Oysters are rich in *ash*. They contain more *iron* than beef; they also contain *iodine*. Vitamins: A++, B++, C+, G++ (see Note 1, page 37).

to remove bits of shell. Oysters, like meat, should not stand in water when washed.

To wash oysters, put them in a strainer or colander and let water run through them.

Small pieces of shell often cling to oysters. These should be removed. To do this, finger each oyster and remove the bits of shell.

How are oysters cooked? Long cooking toughens oysters. They are most palatable when cooked merely until they become plump and their edges begin to curl. Since oysters contain so

much water, they may be cooked in their own juices without the addition of any liquid.

There are several ways of cooking oysters — stewing, steaming, scalloping, frying, and broiling in the half shell.

Scalloped oysters and fried oysters are suitable dinner foods. However, because they do not contain a high percentage of proteins, they are often served for luncheon or supper.

Oyster stew is really oyster soup. It is made of milk, oysters, seasoning, and sometimes butter. Because of the large quantity of milk, oyster stew is a nourishing soup and is more suitable for serving at luncheon or supper than at an elaborate dinner.

Oyster dishes which may be served at dinner follow :

SCALLOPED OYSTERS

1 pint oysters	3 tablespoons butter
$\frac{1}{2}$ teaspoon salt	3 cups soft bread crumbs
Speck of cayenne	$\frac{1}{4}$ cup oyster liquor or milk

Strain the liquor from the oysters; then wash the oysters as directed on page 408. Add the seasoning.

Butter the crumbs as suggested on page 280. Arrange the crumbs and oysters in a baking dish as directed for scalloped corn, page 280.

Bake in a hot oven — 400° F. — from 30 to 40 minutes or until the oysters are heated through and the crumbs are brown.

FRIED OYSTERS

Oysters, preferably large ones	Dried bread crumbs
Salt and pepper	Eggs
1 tablespoon water or oyster juice for each egg	

Wash the oysters and remove bits of shell, as suggested on page 408.

Dry the oysters on a towel. Sprinkle salt and pepper over them.

Then dip each oyster into dried bread crumbs and egg as directed in making croquettes. (See page 298.) Fry as directed for croquettes. Serve hot. Garnish with lemon and parsley.

SUMMARY

Poultry is the term applied to birds used as food, such as chicken, fowl, turkey, duck, and goose.

A *chicken* is a bird not more than 1 year old.

A fowl is a bird more than 1 year old.

A fresh-killed chicken is a bird that has been recently killed.

A cold-storage chicken is a bird that has been kept at a low temperature for some time after killing.

A milk-fed chicken is a bird that has been fed on buttermilk, corn meal, and wheat.

A dry-picked chicken is a bird whose feathers have been removed without scalding.

Drawing a chicken is removing the internal organs

Giblets are the liver, gizzard, and heart of poultry.

Roast chicken is whole chicken baked in the oven.

Stewed chicken is chicken cut in pieces and cooked in water.

Fricasseed chicken is chicken cut in pieces, browned in fat, then cooked in water or steam.

COMPOSITION OF FOWL, EDIBLE PORTION

Water	Proteins	Fat	Mineral Matter	Vitamins
63.7%	19.3%	16.3%	1% (calcium — very little; phosphorus and iron — good amounts)	A — to + B + C*

TABLE FOR ROASTING CHICKEN AND YOUNG TURKEY

Bake uncovered in a slow oven at 300° F., 25 minutes for each pound. Add no water to the pan. If not browned, finish baking at 500° F.

Bake fowl and older turkey in a covered pan, at 275° F., 25 minutes for each pound or until tender.

Fish may be classified as:

1. Fresh-water fish
2. Salt-water fish

It may also be classified as:

1. Dry or lean fish
2. Fat or oily fish

A third classification of fish is:

1. Fish without outer shell
2. Shellfish

QUESTIONS AND EXERCISES FOR REVIEW

Some of the following statements are true and some are false. Read each statement very carefully and decide whether it is true or false. On a piece of paper or in your notebook list the numbers corresponding to the statements. After each number write the word True or the word False.

1. Chicken is a food rich in proteins.
2. Only about one third of the original weight of a chicken is eaten.
3. A fowl has many pinfeathers.
4. A fowl is an older bird than a chicken.
5. The breast bone of a broiler is not flexible.
6. Oysters contain a larger percentage of proteins than beef.
7. Salmon is a fat fish.
8. Cod is a fresh-water fish.
9. Oysters contain iodine.
10. Proteins of fish are of excellent quality.
11. There is no proof that chicken is more easily digested than beef.
12. Fish keeps better than beef.
13. Fresh fish have colorless gills.
14. Whole fish have less waste than fish steaks.
15. It is better to buy oysters in cold weather than in warm weather.
16. Oysters are always sold by the dozen.
17. Long cooking toughens oysters.
18. Oysters should stand in water while they are washed.
19. Some kinds of fish are preserved by drying and salting.
20. Both fresh and canned salmon may be purchased.
21. Fish are lacking in extractives.
22. There is more connective tissue in fish than in beef.
23. Oysters are frozen to keep them from spoiling during shipping.
24. Dry fish contain only a small quantity of water.
25. All chickens must be scalded before the feathers are removed.

HOME WORK

1. If possible do at least one of the following :

<ol style="list-style-type: none"> a. Select a chicken or fowl at market. b. Clean and cut up a chicken or fowl. c. Cook a chicken or fowl. 	<ol style="list-style-type: none"> d. Select a fish at market. e. Clean and cook fish. f. Cook oysters.
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2. If you bought a chicken, fowl, or fish, carefully state what points you kept in mind when selecting it.
3. If you cooked chicken, fowl, fish, or oysters, state the method of preparing it. If you considered the finished product successful, tell why you think it was successful. If the results were not entirely successful, state the cause of your failure. Also state what you would do the next time to avoid the mistake.
4. If you cleaned or cut up a chicken or fowl, state the number of pieces into which you cut the bird and the name of each piece.

CHAPTER XXIX

VEGETABLES FOR DINNER

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Explain the following statement: It is wasteful to throw into the sink water in which vegetables were cooked.

2. How is it possible to cook vegetables in water so that no water needs to be drained away after cooking? What are the advantages of this method?

3. Why does a baked potato taste different from a boiled one?

4. Why are steaming and baking good methods of cooking vegetables?

5. How long does it take to bake a medium-sized potato?

6. Why is it a good thing to cook vegetables having skins without paring?

7. What is meant by waterless cooking?

8. What effect does overcooking have on the color of vegetables?

9. How many minutes should green corn cook in water?

What may be lost by cooking vegetables in water? You would not throw away a precious stone. Would you then throw away some of the treasures found in vegetables which may be far more valuable to you than gems? Let us see how we can save the treasures of vegetables.

By experiment it was found that when vegetables are cooked in water and *the water is then thrown away*, almost *four times* as much of valuable materials are lost as when the vegetables are steamed.¹ This means then that when we cook vegetables in water, and after cooking pour that water down the drain, we are throwing away some of the treasures found in vegetables.

¹ See page 265 of the *Journal of Home Economics*, May, 1925.

Let us do some experimenting to find whether we lose anything besides nourishing materials when we cook vegetables in water and then throw away the water.

Experiment 26: *To show that flavor is lost when vegetables are cooked in much water.*

(a) Wash some spinach carefully. (See page 279.) Measure 1 cup, pressing the leaves in the cup as you measure them. Put the spinach in a saucepan and add 2 cups of water. Cook the spinach until it is tender. Then drain the water from the leaves, saving it. Taste the water; note its color. Does it contain spinach flavoring?

Cut the spinach leaves into pieces, using a knife and fork. To the leaves add $\frac{1}{4}$ teaspoon salt, pinch of pepper, 1 teaspoon butter, and $\frac{1}{4}$ teaspoon lemon juice.

(b) Repeat (a), making the following exception. *Add no water to the spinach in the saucepan.* Cook the spinach, stirring the leaves occasionally until they begin to wilt; then continue to cook until the leaves are tender. Cut the spinach leaves and add the same quantity of seasoning materials as given in (a). *Do not drain away the water.*

Taste the spinach leaves of (a) and those of (b). Does one have a better or more pronounced flavor than the other?

(c) Which is the better way of cooking spinach? Why?



FIGURE 126. A COMMON STEAMER

The lower part of this utensil is a plain granite pan. The upper part is made of tin plate and has a perforated bottom. Water is put in the lower pan. Food held in a dish or other pan is placed in the perforated pan. The steam formed in the lower pan cooks the food.

Why is steaming a good method for cooking vegetables? Figures 126 and 127 show different types of steamers. Regardless of their shape, steamers are built so that food may be cooked without being immersed in water. Food is cooked by steam.

The advantage of cooking vegetables in a steamer is that not so much mineral matter and vitamins are lost by dissolving in water as when vegetables are immersed in water.



Aluminum Goods Manufacturing Co.

FIGURE 127. AN ALUMINUM STEAMER

In this utensil, the lower pan is made to fit the upper. A steamer must have a cover which fits well.

than leaf vegetables, are successfully cooked in a steam-pressure cooker.

How are vegetables baked? Who does not like a piping hot baked potato better than a boiled potato? Baking is a very desirable method of cooking vegetables. Baked food is cooked

How does cooking in a steam-pressure cooker differ from cooking in a plain steamer? Have you ever lifted up the cover from a teakettle and burned your fingers in the escaping steam? If you have, you realize how hot steam is. When steam is held under pressure, it becomes even hotter than when it is allowed to escape immediately into the air. In a steam-pressure cooker the steam is held under pressure. Inside the cooker, the temperature becomes higher than that of boiling water, often as high as 240° F. At this high temperature food cooks in a short time. Root vegetables or dried vegetables, which require a longer time to cook

by dry heat. When food is boiled or steamed, it is cooked in moist heat. Changes are brought about in food cooked in dry heat that give it a different flavor from food cooked in moist heat. Moreover, when food is baked, no mineral matter or other nutrients are lost by dissolving in water.

Not only potatoes, but many other vegetables, such as winter squash (see page 416) and tomatoes (see page 284), are delicious when cooked in the oven. Often, in the preparation of a meal, meat is cooked in the oven and vegetables on the surface burners. When meat is cooked in the oven, it is a saving of fuel to cook the vegetables also in the oven. With careful planning it is often possible to cook an entire meal in the oven.

Directions for baking some vegetables follow :

BAKED POTATOES (White or Sweet)

Scrub the potatoes. Heat the oven to a high temperature — 500° F. Place the potatoes on the grate of the oven. Bake until tender when tested with a fork or knitting needle — usually *50 to 60 minutes*.

As soon as the potatoes come from the oven, cut criss-cross gashes in the top of each potato. Press the potato slightly so some of the steam may escape. A bit of butter and a dash of salt, pepper, or paprika may be placed on the top of each potato. Serve at once. Keep potatoes warm by placing over them a napkin — not a dish cover.

Mashed potatoes are often prepared by mashing *boiled* potatoes. Baked potatoes (both white and sweet) also make very good mashed potatoes. Potatoes often become cool while being mashed. *Mashed baked potatoes* may be placed in the potato skins or shells and returned to the oven. Thus they may be served piping hot. Baked sweet potatoes, mashed and heated in their shells, are sometimes called *Sweet Potatoes, Southern Style*.

STUFFED POTATOES (White or Sweet)

6 medium-sized potatoes
2 teaspoons salt
 $\frac{1}{8}$ teaspoon white pepper

2 tablespoons butter
Enough milk or cream to moisten —
usually about $\frac{1}{2}$ cup

Immediately after taking the baked potatoes from the oven, cut them in halves lengthwise or cut a piece from the top of each potato. With a fork or spoon remove the inside of the potato, dropping the mealy portion into a bowl and taking care not to break the skin.

Mash the potatoes; add the butter, milk, and seasoning. Beat until the ingredients are thoroughly blended and the potatoes are lighter in color. Put the mixture in the potato shells, heaping it unevenly. Place the stuffed potatoes in a pan and bake in a *very hot oven* (500° F.) until the potatoes are brown. Serve hot, garnished with parsley sprigs.

Baked potatoes taste different from boiled potatoes; *baked squash* tastes different from steamed squash. Although baked squash is very tasty, a longer time is required to bake this vegetable than to steam it.

BAKED WINTER SQUASH

Wash the outside of a squash. Cut or break it into pieces of suitable size for serving. Remove the seeds and stringy part from each piece. Do not pare the vegetable.

Place the pieces, soft part up, on a baking sheet. Put the pan in the oven. Bake in a *very hot oven* — 500° F. — for 1 hour or until the vegetable is tender.

Put a piece of butter on each piece. Add salt and pepper. Serve hot.

What care should be taken in cooking vegetables in water? Vegetables are cooked in water more often than in any other way. In Experiment 26, we learned that mineral matter and vitamins, as well as other nourishing substances, may be lost by cooking vegetables this way. Vegetables may be cooked in water and served in such a way that no nourishing materials are wasted. Such methods of cooking vegetables in water are described in this book. When cooking vegetables in water, make every effort to save all nourishing materials.

As a usual thing a shorter time is required to cook vegetables in water on top of the stove than to cook them in a steamer or in the oven. The longer vegetables are cooked, the more vitamins are destroyed. Short cooking may be an advantage as

far as saving vitamins are concerned, if there is no loss of vitamins in the water in which vegetables are cooked. There are some ways of preparing and cooking vegetables in water so that we lose very little of the mineral matter, vitamins, and other nutritious materials. These ways are :

1. Cook vegetables in a small amount of water so that only a spoonful or two of liquid is left after cooking. Serve this liquid with the vegetable.

2. Do not pare vegetables before cooking in water. Cook them whole and with their skins on.

3. Cook pared vegetables in water, but use every bit of the water left after cooking in making a sauce to serve with the vegetables or in making a soup. When vegetables are pared, leave them in as large pieces as possible. The smaller the pieces, the more nutrients will be lost.

4. Do not add baking soda to the water in which vegetables are cooked. The soda destroys some of the vitamins.

How long should vegetables cook in water? No doubt the dislike that some people have for vegetables is due to the fact that they have too often tasted overcooked vegetables. Sweet corn and many other vegetables may be ruined by too long cooking in water. It has been said that vegetables should be cooked in water long enough to remove their hardness, but leave something of their crispness. If vegetables become limp, they are usually overcooked. Overcooking vegetables usually causes them to lose more of their color than necessary. On the other hand, vegetables which are undercooked are hard and tough and generally unpleasant to eat.

Because vegetables vary in kind, in size, and in age, it is difficult to state just how long they should be cooked. Usually the older a vegetable, the longer the time required for cooking.

For those who are cooking vegetables for the first time, it is usually a help to refer to a time table. One should not depend, however, entirely on the table. In judging when to remove

vegetables from a fire, test them for tenderness by using a fork, a knitting needle, or a paring knife. When you pierce the vegetable, consider how soft it should be to make the vegetable pleasant to eat.

TIME TABLE FOR COOKING VEGETABLES IN WATER AT BOILING TEMPERATURE

Asparagus . . .	10-25 minutes	Corn, green . . .	5-10 minutes
Beans, lima (fresh)	20-40 minutes	Onions . . .	20-35 minutes
Beans, string . .	30-35 minutes	Parsnips . . .	25-30 minutes
Beets, young . .	45-60 minutes	Peas (fresh) . .	20-30 minutes
Beets, old . . .	1-2 hours	Potatoes, sweet .	20-25 minutes
Cabbage . . .	5-7 minutes ¹	Potatoes, white .	25-30 minutes
Carrots . . .	20-40 minutes	Spinach . . .	5-10 minutes
Cauliflower . . .	8-10 minutes ¹	Squash, summer .	15-30 minutes
Celery . . .	20-45 minutes	Turnips . . .	20-25 minutes

How are vegetables cooked in water? Potatoes prepared as directed in the following may be cooked in a short time. This is often convenient. Also, nutrients are saved, for no moisture is drained away.

STEWED POTATOES

1 quart sliced uncooked potatoes	2 teaspoons salt
1 cup water	$\frac{1}{8}$ teaspoon pepper
$\frac{1}{2}$ cup milk, preferably top milk	2 tablespoons butter

Scrub the potatoes. Pare them thin. Cut in thin slices. Put the potatoes and water in a covered saucepan. Boil gently for about 15 minutes or until the vegetables are tender. The water should be almost entirely evaporated. It is sometimes necessary to add a little more water while cooking to prevent scorching.

Add the milk, salt, pepper, and butter. Allow the mixture to reach the boiling point. Serve at once.

If desired, 2 tablespoons of finely chopped parsley may be added when the butter is added. Yield: 6 servings.

Carrots and some other root vegetables may be cooked with their skins. This prevents a loss of some of their mineral

¹ See page 121 of the *Journal of Home Economics*, February, 1928.

matter and vitamins. It is advisable to cook carrots without scraping.

CREAMED CARROTS

6 medium carrots (2 pounds) 1 cup medium white sauce (page 246)

Scrub the carrots. Do not scrape them. Place in boiling salted water (1 teaspoon salt to 1 quart water). Boil gently until the carrots are tender. Drain off the water. Peel the carrots and cut them into cubes, slices, or strips.

If the carrots are scraped before cooking, use less water. Then combine the small quantity of vegetable water remaining with milk to make 1 cup of liquid for the white sauce.

Add the carrots to the sauce. Heat; serve hot. Yield: 6 servings.

Variation: Creamed Carrots with Peanut Butter. — Prepare creamed carrots as directed in the foregoing. To the sauce add 3 tablespoons peanut butter. The peanut butter adds flavor and food value to the sauce and makes it of a pleasing creamy color.

Spinach contains much moisture. As shown by Experiment 26, heating the vegetable draws moisture from the leaves. Hence no water need be added for cooking.

SPINACH

**1 pound spinach
1 teaspoon salt
 $\frac{1}{8}$ teaspoon pepper
1 teaspoon sugar**

**2 tablespoons butter
1 teaspoon lemon juice
or vinegar, if desired**

Wash the spinach as directed on page 279. Drain the leaves well. Put them in a saucepan. *Add no water.* Place over a flame. Stir occasionally until the leaves are wilted. Then continue to cook until the vegetable is tender and there is very little liquid in the pan.

Cut the leaves into pieces with a knife and fork. Add the salt, pepper, sugar, and butter. Add lemon juice or vinegar if desired. Stir until the ingredients are mixed and the butter melted. Serve hot.

Variation. — Grated horseradish gives spinach a good taste. Omit the teaspoon of lemon juice or vinegar and add 1 tablespoon of a mixture of grated horseradish and vinegar.

Onions may be prepared so that they are mild in flavor. This is done by cooking them in a large quantity of water. The water

not only extracts some of the flavoring, but some of the mineral matter and vitamins. In the case of onions, it may be advisable to lose some of the nourishing substances for the sake of flavor.

ONIONS

2 quarts boiling water	$\frac{1}{4}$ cup top milk or cream
2 teaspoons salt	1 teaspoon salt
1 $\frac{1}{2}$ pounds onions	$\frac{1}{2}$ teaspoon pepper
1 tablespoon butter	

Peel the onions, keeping the hands under water as suggested on page 279. Put the onions in the boiling salted water. Cook them *uncovered*, letting the water *boil gently*. Continue to cook them until they are tender.

Drain the water from the vegetable. Add the remaining ingredients. Cook until the top milk or cream is hot. Serve hot. Yield: 6 servings.

If onions are cooked *uncovered* in a large quantity of gently boiling water in a well-ventilated kitchen, not much odor is noticed. When onions are cooked in the fireless cooker or in a heat-regulated oven, the strong onion odor does not permeate the house.

Practically all vegetables may be cooked in water. After having cooked potatoes, carrots, spinach, and onions, you should try cooking many others. In cooking vegetables:

1. *Use boiling water.* After the vegetables are added to the boiling water it should continue to *boil gently* so as not to break up the vegetables.

2. *Add salt to the water* in which vegetables are cooked, 1 teaspoon to each quart. Cover to avoid loss of Vitamin C by oxidation.

3. If vegetables are cooked in water so that more than a tablespoon or two of moisture remains after cooking, the water should be drained away. After draining potatoes it is well to shake the pan in which they are held over a low flame for about 1 minute *to dry the moisture*. If it is necessary to let them stand before serving, place them uncovered in the warming oven or cover them with a clean cloth.

What is waterless cooking? You found it was easy to cook spinach without adding water because spinach is itself more than 90% water. The spinach was cooked in the water that

clung to the vegetable when it was washed and that was drawn from the vegetable when it was heated.

Waterless cooking is not cooking without water. It is *cooking food in some of the water which is contained within the food*. On page 59, we learned that even a seemingly dry food like uncooked rice or flour really contains some water. Not all vegetables contain so much water as spinach, but they all contain more water than rice or flour. By placing vegetables or meat in a utensil having thick walls and bottom so constructed that the heat will spread, it is possible to cook the foods in their own moisture. The utensil must have a tightly fitting cover with a tiny opening in it so that some of the steam may escape. Because of its special construction, the device is expensive. In cooking some foods it is necessary to add a tablespoon or two of water.

Foods may be cooked in a *heat-regulated oven by adding little or no water* to them. Place the vegetable in an ordinary covered pan or baking dish and bake it at 350° F. for from 35 minutes to 1½ hours — the time depending upon the kind of vegetable. A longer time is required to cook the food in the oven than on the top burner.

SUMMARY

Vegetables should be cooked so as to *lose as little nutriment as possible*. This may be done by:

1. Cooking in a small quantity of water in a covered pan
2. Cooking vegetables whole and with their skins
3. Cooking pared vegetable in water, but using vegetable water drained away in making soups or sauces
4. Baking vegetables
5. Steaming vegetables

When vegetables are *cooked in water*:

1. Place in boiling salted water.
2. Boil gently.
3. Dry starchy vegetables after cooking.

Waterless cooking is cooking food in some of the water contained within the food.

Waterless cooking, steaming, and baking are desirable methods of cooking vegetables since little or no ash or other nutrients are lost by dissolving in water.

REVIEW QUESTIONS AND EXERCISES

1. Why are onions cooked in a good deal of water while only a little water is used for cooking potatoes?
2. Name two foodstuffs that are lost by cooking onions in much water. Is any advantage gained?
3. In which utensil may vegetables be cooked at a higher temperature — a plain steamer or a steam-pressure cooker?
4. Explain why foods may be cooked at a higher temperature in the one utensil than in the other.
5. Why is it unnecessary to add water to spinach when cooking it?
6. In what two devices may onions be cooked so that little odor spreads through the house?
7. Should baked potatoes be served in a covered or in an uncovered dish? Why?
8. Should water in which vegetables are cooked boil rapidly or gently?
9. What are the best two ways of cooking squash? Give reasons for your answer.
10. In mashing potatoes, the milk added to them should be heated. Why? Is it necessary to heat the milk added to stuffed baked potatoes? Explain.

HOME WORK

1. For each day of the week, make a list of two vegetables other than potatoes that would be desirable to serve in your home. Before making the lists, turn back to page 270, and read the suggestions for selecting vegetables which are to be served together. Also refer to the vegetables which you learned to cook on pages 280-284.
2. Cook vegetables in your home at least twice during the week.

CHAPTER XXX

YEAST BREADS

Can you answer these questions? If not, look for the answers as you study this chapter.

1. What makes some yeast bread taste sour?
2. Should one eat white or whole-wheat bread?
3. What are three kinds of yeast?
4. What is a convenient test to determine whether a liquid is lukewarm?
5. How can the crust of bread be softened during baking?
6. How can biscuits be arranged in a pan so that they will be covered entirely with crust when baked?

Shall we make bread at home? By *homemade bread* one usually means bread made with yeast. When bread is leavened with yeast, several hours are required to make it. It is perhaps because yeast-bread making is a long process that in many homes baker's bread is used.

Whether it is wise to make bread at home or to buy it is a question for the home maker to decide. Bread of good taste and quality is made in many commercial bakeries. However, there can be no denying that well-made home-baked bread is delicious. Also, one can be sure of the ingredients used in homemade bread. Although yeast bread takes some time to rise it does not require constant watching. If one is busy about the kitchen, bread making can be worked in with little difficulty. In deciding whether to buy or to bake bread, a home manager should consider whether the effort required to make it compensates for the advantages of homemade bread. She should also consider whether there is any difference in cost.

What kind of bread shall we eat? Yeast bread is commonly made with fine white or with whole-grain flour. Which kind is better to eat? From the study of flours given on page 82, we learned that whole-wheat flour is richer in mineral matter and vitamins than white flour. Unless we use plenty of milk and leafy vegetables to supply mineral matter and vitamins, it is far better to use whole-grain bread. For those troubled with *constipation*, breads made from coarse flours are better than those made from fine flours.

Bread and other cereal foods are among the cheapest foods. Where, for reasons of economy, a good deal of bread is eaten, it is especially advisable to eat bread made from whole grains. One should realize, however, that, although bread has been considered "the staff of life," it is not well to eat bread alone. A diet of bread, meat, and potatoes does not meet the needs of the body.¹ In addition to these foods, milk, fruits, and vegetables, especially uncooked vegetables, are needed.

What are some points to consider in buying bread? Bread is sold with and without paper wrapping. Which shall we buy? Bread wrapped in paper costs more than the unwrapped. It is, of course, cleaner and freer from bacteria than that which is uncovered. Since bread is most often eaten without being heated or cooked, it pays to buy the wrapped loaves, even though they cost more. Wrapping bread in paper also keeps it fresher.

Loaves of bread vary greatly in size. If loaves of different weight are sold, it is well to weigh them and determine the cost by the ounce. For example, a loaf of bread weighing 14 ounces and selling for 12 cents would cost $(12 \div 14)$.85⁺ cent an ounce. Another loaf weighing 5 ounces and costing 6 cents would cost 1.2 cents an ounce. If all the larger loaf could be eaten, it would be the better buy.

¹ See page 17 of *Food, Nutrition, and Health* by McCollum and Simmonds.

The quality of the bread needs, of course, to be taken into consideration. This is a difficult matter if we do not know what ingredients were used in making the bread. The bread can be scored as explained on page 430, to judge its quality.

How does yeast make breads light? We learned that baking powder forms a gas which makes dough porous and light. A gas is formed also when yeast is used to leaven bread. However, forming gas by the action of yeast is very different from forming gas by the action of baking powder.

Baking powder is a white dry powder. Yeast is sold at market in cakes. The cakes may be either dry or moist. Moist yeast cakes are called *compressed yeast*. From the action of this kind of yeast, gas may be formed more quickly than from dry yeast. For this reason, we shall use compressed yeast in experimenting.

Experiment 27: *To learn how to use yeast.*

(a) In a cup mix 1 tablespoon flour, 1 tablespoon sugar, and 5 tablespoons cold water. Break 1 cake of compressed yeast into bits and add it to the flour mixture. Stir.

Put 1 teaspoon of this yeast mixture into a test tube. Fill the tube nearly full with lukewarm water. As you have already learned, if gas is forming, bubbles will appear at the surface of the liquid. Do you see any bubbles?

(b) Surround the tube with lukewarm water. Set it aside in a warm place for at least 15 minutes. Do you now see any bubbles in the test tube? The gas that is formed in the test tube is carbon dioxide.

The pasty cake of yeast which you used was filled with plants. Of course, you could not see the plants in the yeast cake because they were so tiny. Then, too, yeast plants are not green. They do not have leaves and roots. They do not look like the plants which you find in the garden.

Like other plants, yeast plants need soil or food on which to grow. The flour and sugar served as food for the yeast plants. Yeast plants also need moisture and heat to make them grow. The warm water furnished the plant with moisture and heat.

Yeast plants grow rapidly. (See Figure 128.) As yeasts grow, they break up the food needed for growth. From



U. S. Department of Agriculture

FIGURE 128. GROWING YEAST PLANTS, MAGNIFIED

When a yeast plant or cell grows, a bud forms at one side of the cell. When the bud grows large enough, it separates from the original cell; a new cell is thus formed. Sometimes more one bud grows on a cell.

the food, the gas, *carbon dioxide*, and *alcohol* are formed.

When yeasts are growing in bread dough, the carbon dioxide which is formed makes the dough porous. The alcohol passes off as a gas when the dough is baked. The yeast plants are destroyed by baking.

What care must be taken to make yeast plants grow? You will remember that in Experiment 27, *lukewarm water* was added to the yeast. Let us see what would happen if boiling water were added.

Experiment 28: *To learn the effect of boiling water on yeast.*

(a) Put a teaspoonful of the yeast mixture prepared in Experiment 27 into a test tube. Fill the tube with *boiling water*. Set the tube aside for a few minutes. Then examine it. Do you see any bubbles in the tube?

(b) What do you think the boiling water did to the yeast plants?

It is interesting also to find whether or not yeast plants will grow in very cold water.

Experiment 29: *To learn the effect of ice water on yeast.*

(a) Put a teaspoon of the yeast mixture prepared in Experiment 27 into a test tube. Fill the tube nearly full of ice water. Surround the

tube with cracked ice or, if the weather is cold, place it outdoors. Let it stand for at least 15 minutes. Do you see any bubbles in the tube?

(b) Now surround the tube with warm water. Let it stand for at least 15 minutes. Do you see any bubbles in the tube?

(c) Did the ice water kill the yeast plants? Give a reason for your answer.

In the garden, plants must be treated with care. They must have water and the right kind of soil. They need heat, but not too intense heat. Scalding water poured over garden plants would kill them, as boiling water killed the yeast plants.

When yeast is mixed, care must be taken to use water that is not too warm. It is well to use lukewarm water because the yeast plants will begin to grow much more quickly if watered with lukewarm rather than with cold water. While the yeast plants are growing in the dough, the dough should be kept warm.

How can we tell whether yeast is fresh? Sometimes dark spots appear on a compressed yeast cake. Such a yeast cake should not be used. Good results cannot be obtained from it because some of the yeast plants are dead. It would be wasteful to add such yeast to the other ingredients used in making bread. A good cake of compressed yeast is *uniformly creamy in color*. It *feels moist*. It can *easily be broken into crumbs*.

Compressed yeast cakes are delivered to most markets every day or two. They are wrapped in tin foil.

What may make yeast dough sour?¹ Sometimes yeast dough has a sour odor. When it is baked, the bread has a sour taste. The souring of bread dough often happens when the dough stands too long before baking.

We have learned that alcohol, as well as carbon dioxide, is formed as a result of the growth of the yeast. Now if the dough stands too long, a change will take place in the alcohol and an

¹ *Note to the Teacher:* For a detailed explanation, see page 529 of *Chemistry* by Greer and Bennett, Allyn and Bacon.

acid will be formed. The acid that is formed is the same as that present in vinegar. The acid gives bread a sour taste. In order to prevent this, the dough should be made to rise quickly.

What kind of flour should be used for yeast breads? When we learned how to make muffins, pastry flour was advised. (See page 80.) It is well to use soft wheat or pastry flour for mixtures leavened with baking powder. For yeast mixtures hard wheat or bread flour is better.

There is in dough a *tough, elastic substance* called *gluten*. Dough made from bread flour contains more gluten than that made from pastry flour. Although carbon dioxide is formed in both yeast and baking-powder mixtures, the gas is formed more slowly in yeast mixtures than in baking-powder mixtures. Therefore, if the dough is tough and elastic, the bubbles formed by the yeast will be held in the dough and will not break through and escape.

Some housekeepers like to use a kind of flour called *all-purpose flour* for both yeast bread and baking-powder mixtures. All-purpose flour is made from a mixture of soft and hard wheat. While very good results can often be obtained by using this kind of flour, the use of bread flour for yeast mixtures and pastry flour for all other flour mixtures is generally better.

Whole-wheat and Graham flours as well as other coarse-grained flours may be used for making yeast bread.

How is yeast bread made? If we keep in mind that yeast is a plant which must grow when bread dough is being prepared for baking, we shall understand better the mixing of bread dough.

Liquids mixed with yeast should be lukewarm. An *easy way to tell whether a liquid is lukewarm* is to let a drop of the liquid fall on the inside of the wrist where the blood vessels come near the surface of the skin. If the liquid feels neither cooler nor warmer than the wrist, it is about lukewarm.

YEAST BREAD (2 loaves)

2 tablespoons sugar	$\frac{1}{2}$ to 1 cake compressed yeast
2 teaspoons salt	$\frac{1}{2}$ cup lukewarm water
2 tablespoons fat	Bread or hard wheat flour (7 or 8 cups)
1 pint boiling water or scalded milk and water	

In a mixing bowl, put the sugar, salt, and fat. Add the boiling water or mixture of hot milk and water. Stir to dissolve the sugar and salt and to melt the fat. Then set aside until the mixture is lukewarm.

(Use the greater quantity of yeast if you want the dough to rise quickly.) Break the yeast cake into bits. Add the lukewarm water and stir. Pour this yeast mixture into the other lukewarm mixture.

Through a sifter, add enough bread flour to make a stiff dough. Mix the flour into the liquid by means of a knife. Flour a bread board slightly. Turn the dough onto the board and *knead* it. The dough should be kneaded until it is elastic. One can tell when the dough is elastic by denting it with the finger. If the dough is elastic, the dent will quickly disappear. Put the dough back into the bowl. Rub lukewarm water over its surface. Cover the bowl. Set it aside in a warm place so that the yeast plants will grow and the dough will rise. Let the dough rise until it has at least doubled its bulk.

In order to break the larger bubbles and distribute the gas more evenly the dough should be kneaded again. Loosen the dough from the bowl and put it on the board dusted lightly with flour. Knead the dough until the large gas bubbles have disappeared.

Cut the dough in two pieces. Shape each piece into a loaf. Put each loaf into a greased oblong bread pan. Rub the top of each loaf with lukewarm water or grease with butter. Cover the pans with a clean cloth. Set aside in a warm place until the loaves have risen and the dough is at least $2\frac{1}{2}$ times as large as when placed in the pan.

Place the bread to bake in a *hot oven* and bake *15 minutes*. Then if possible *reduce the temperature of the oven* and bake from *35 to 45 minutes* longer. If the oven heat is regulated, bake the bread at 425°F. for *15 minutes*, then at 375°F. for *35 to 45 minutes*.

To decide whether or not the bread is done carefully note:

1. *Color of crust* — all that can be seen above the top of the pan should be golden brown.
2. *Shrinkage of crust* — the crust should be drawn away from the sides of the pan.

3. *Sound when tapped with the knuckle* — there should be a hollow sound.

To soften the crust — Rub it with a bit of butter a few minutes before taking the bread from the oven and again after removing from the oven.

To cool and store the bread — After removing from the oven, take it out of the pan. Place the loaves on a bread cooler or arrange them so that the air may reach them on all sides. When entirely cold, *store* in a covered crock.

Variations: Whole-Wheat Bread. — Follow the recipe for white bread given on page 429, making the following changes :

Substitute *whole-wheat flour* for white flour, but use less whole-wheat — about 5 or 6 cups. Do not make whole-wheat flour dough as stiff as white-flour dough. Use the larger quantity of *yeast*.

Raisin Bread. — Prepare whole-wheat dough, making the following changes: Increase the *sugar* to $\frac{1}{2}$ cup. Add 2 cups of seeded *raisins*.

How can we judge the quality of bread? We like to see a loaf of bread which looks good on the outside and has a good shape, and whose crust has a pleasing golden brown color.

When the loaf is cut, its crumb should be of good quality — light, fine-grained, elastic, tender, moist, and of creamy color.

One of the most important things about bread is its flavor. It should not only look good, but taste good.

Since there are so many points to consider about bread, we can judge the quality of bread better if we follow a score card, such as the following :

SCORE CARD FOR YEAST BREAD

	PERFECT SCORE
Shape and Size	10
Crust — color, depth, texture	15
Crumb :	
Light	15
Grain (fine)	5
Elastic	5
Tender	5
Moist	5
Color (light cream)	5
Flavor	35
<hr/> Total	<hr/> 100

What is a yeast sponge? If to a mixture of yeast, moisture, sugar, and salt only enough flour is added to make a batter, the mixture is called a *sponge*. A yeast sponge differs from yeast dough only in the quantity of flour.

Bread is sometimes made first as a sponge, which is allowed to stand until the yeast plants begin to grow and the mixture becomes porous. Then more flour is added to the sponge, so that a dough is formed. The process is continued in just the same way as when the ingredients are mixed into a stiff dough at the beginning.

In using *dry yeast*, a sponge should be made. This moist mixture is needed in order to make the dry yeast plants begin to grow as quickly as possible. In making *yeast rolls* or *biscuits*, even though compressed yeast is used, the sponge method is followed. This is done to make biscuits especially light. When potatoes are used, the rolls are especially moist and delicious.

POTATO YEAST ROLLS OR BISCUITS

1 cup scalded milk	1 cup bread flour
$\frac{1}{4}$ cup lard	2 eggs, beaten
$\frac{1}{4}$ cup butter	1 cake yeast
$\frac{1}{3}$ cup sugar	$\frac{1}{2}$ cup lukewarm water
1 cup mashed potatoes	$1\frac{1}{2}$ teaspoons salt
Bread flour, about 5 cups	

Mix the hot milk, fat, and sugar. Stir in the potatoes. Let stand until it is lukewarm. Then add 1 cup flour and the eggs.

Mix the yeast with the lukewarm water. Add this to the milk and potato mixture. Beat until the ingredients are thoroughly mixed. Cover and set aside in a warm place until the mixture is risen and full of bubbles.

Add more flour, sufficient to make the dough stiff enough to knead. Knead until the dough is elastic. Cover and set aside in a warm place. Let the dough rise until it is at least doubled in size. Knead the dough.

The dough is now ready to be *shaped* into biscuits or rolls. To make *plain biscuits*, take a small piece of dough (about half as large as you want the biscuit to be) and shape it into a ball. If you desire biscuits

covered with crust, place the balls on a greased dripping pan or pie pan. Put the balls of dough on the pan so there is a space between them. If you wish biscuits with crust only on the top and bottom, place the balls of dough close together on a greased pan. Yield: 36 rolls.

To make Clover Leaf rolls — Shape the dough into small balls, not more than an inch in diameter. Place 3 balls in each cup of a greased muffin pan.

To make Parker House rolls — With a rolling pin roll out the dough on a slightly floured board until it is from $\frac{1}{3}$ to $\frac{1}{2}$ inch in thickness. With a biscuit cutter, cut the dough into rounds. Put a bit of butter near the edge of each biscuit. Fold each biscuit and press the edges together. Place the biscuits on a greased pan.

Cover the biscuits or rolls and let them rise until they are at least $2\frac{1}{2}$ times as large as when shaped. Bake in a *hot oven* — 400° F. — for 20 to 25 minutes. The time will depend upon the size of the biscuits and the color desired.

The crust may be softened with butter as directed on page 430, or it may be glazed.

To glaze the crust — A few minutes before removing the biscuits or rolls from the oven, brush them with milk and sugar (1 part sugar to 2 parts milk) or diluted egg white (1 egg white, 1 tablespoon water).

SUMMARY

Some of the materials used in making yeast bread:

1. *Flour* — Use *wheat bread flour* or a combination of wheat bread flour with whole-wheat or Graham flour. It is advisable to *warm the flour* before mixing it with the other ingredients especially in cold weather.
2. *Yeast* — Kinds commonly used — (a) dry, (b) compressed. *Dry yeast* consists of dried yeast plants mixed with corn meal. This kind of yeast must be placed first in a sponge so as to start the yeast plants growing. *Compressed yeast* consists of yeast plants mixed with moistened starch. Since the yeast plants are active, they begin to grow rapidly when placed in bread sponge or bread dough. Compressed yeast spoils easily.
3. *Liquid* — Water, milk, and potato water are commonly used. If milk is used it should be scalded to prevent it from souring while the dough is rising. Scalded milk as well as any other hot liquid must be cooled to lukewarm temperature before it is mixed with yeast.

Methods of making bread dough :

1. Stiff-dough method (quick process).
2. Sponge method (slow process), followed when dried yeast is used; also used for making biscuits.

REVIEW QUESTIONS AND EXERCISES

1. Why should not hot water be mixed with yeast?
2. What nourishing substances does whole-wheat bread contain which are almost lacking in white bread?
3. Why is bread or hard wheat flour better for making yeast bread than pastry or soft wheat flour?
4. What change takes place in bread dough when it becomes sour?
5. Why is it advisable to buy bread with paper wrapping?
6. What gas makes yeast bread light?
7. How do yeast plants differ from the plants that grow in the garden?
8. What indicates whether or not a yeast cake is fresh?
9. What is a yeast sponge? Why is it used?
10. How can you tell when yeast bread is done?

FIELD TRIP

If possible visit a commercial bakery.

Observe how the ingredients are mixed so as to make bread uniform in quality.

Observe the conditions under which the dough is raised so as to prevent souring.

Observe the conditions for baking which make the loaves a uniform brown.

HOME WORK

1. Prepare yeast breads. Record your scores in your notebook.
2. Write in your notebook a list of breads — both yeast and quick breads — that would be desirable to serve in your home during one week.

A fine way to show that you are a worthy home member would be to prepare these breads in your home, thus making yourself responsible for a week's supply.

CHAPTER XXXI

SALADS AND DESSERTS FOR DINNER

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Name some leafy vegetables suitable for salad.
2. Why should vitamin-rich foods be eaten with meat?
3. How can wilted cabbage be freshened?
4. Should hot or cold water be used to dissolve gelatin?
5. A gelatin mixture is sometimes strained through a cloth. What mistake has been made when bits of gelatin are found in the straining cloth?
6. Gelatin salads or desserts made with fresh pineapple fail to stiffen? Do you know why?
7. How is sugar caramelized?
8. What does snow pudding contain?
9. Why does butter sometimes form when cream is being whipped?
10. What ingredient must be used in generous amount to make cookies tender?

Why shall we have a salad for dinner? We have learned that our bodies need vitamins for health. Meat, which is often the main dish for dinner, does not supply us with all the vitamins, especially C. Vitamin-rich foods should, therefore, be served with meat.

The leafy vegetables are good sources of vitamins. Since cooking destroys most of vitamin C, it is a good plan to eat *raw vegetables* at dinner time. Very attractive salads may be made from such uncooked leafy vegetables as cabbage, lettuce, and water cress. Delicious salads may be made from uncooked carrots and tomatoes, either raw or canned. Fruits may also be used in salads for the dinner menu.

It was stated on page 287 that it was a good plan to eat two salads a day. Since luncheon and dinner are the two meals at which salad is commonly served, this is another reason why a salad should be eaten for dinner.

Why should cabbage, tomatoes, and carrots be used in salads? The complaint is sometimes made that vegetables are high in price and make food bills high. It is true that some vegetables are expensive. They are not, however, nearly so expensive as meats.

Fortunately, cabbage, which is such a nourishing vegetable, is one of the least expensive. The carrot is another nourishing but inexpensive vegetable. When tomatoes are in season, they are often among the cheapest vegetables. In winter you may use canned tomatoes, which are among the cheapest canned vegetables.

How are some simple cabbage and tomato salads made? Cabbage may be served with either an uncooked or a cooked dressing. The uncooked dressings are easily and quickly made. A recipe for a cabbage salad prepared with uncooked dressing follows:

CABBAGE SALAD WITH CREAM DRESSING

3 cups finely shredded cabbage	$\frac{1}{4}$ cup sugar
1 teaspoon salt	2 tablespoons vinegar
$\frac{1}{8}$ teaspoon paprika	$\frac{3}{4}$ cup cream or top milk, sweet or sour

Put the seasoning, sugar, and vinegar in a mixing bowl. Stir to mix. Then add the cream and top milk.

Make sure that the water is drained well from the cabbage. Add the cabbage to the dressing. Mix with a fork.

Pour the salad into a bowl or into sauce dishes for serving. Sprinkle paprika over the salad. You may garnish with pimienta. Yield: *6 medium servings.*

Here is a *relish* that is much better for you than cucumber pickles.

TOMATO AND CELERY RELISH

2 cups tomatoes, peeled and diced 1 cup fresh cucumbers, pared and
1 cup celery cut into pieces diced
1 recipe French dressing (see page 290)

Have the vegetables crisp and cold. Add the French dressing just before serving. Yield: 6 servings.

How is coleslaw prepared? It is important that cabbage be cut into fine, short shreds for salad making. Finely-shredded cabbage with a salad dressing is usually called *coleslaw*.

COLESLAW

On page 292, a recipe for cooked salad dressing is given. This dressing (previously made and cooled) may be used in making coleslaw. Mix the dressing with shredded cabbage. Use 3 cups cabbage (pressed into the cup in measuring) for 6 medium servings.

How are gelatin dishes made? Some of the salad plants make very tasty and attractive salads when combined with gelatin. The basis for most gelatin salads is lemon jelly. Before we can make these salads we need to know how to use gelatin.

The dry, granulated or pulverized gelatin which is found at market looks very different from the clear glistening gelatin desserts and salads which are served at the dining table. It would seem that this dry substance must be dissolved in order to make clear jelly. Let us learn whether to use hot or cold water to dissolve it.

Experiment 30: *To show the effect of cold water on gelatin (Class Experiment).*

(a) Put $\frac{1}{2}$ teaspoon of gelatin into an enamel or aluminum cup. Press the dry gelatin with a spoon. Is it hard or soft?

(b) Add 2 teaspoons of cold water to the gelatin. Cover and let stand a few minutes. Press the moistened gelatin with a spoon. How does it compare with dry gelatin as to hardness?

(c) Does cold water dissolve gelatin?

Experiment 31: *To show the effect of hot water on gelatin.*

(a) Surround the cup containing the gelatin of Experiment 30 with hot water. Then add to the moistened gelatin $\frac{1}{4}$ cup of boiling water. Stir until the bits of gelatin disappear. Does hot water dissolve gelatin?

(b) What is the purpose of surrounding the cup containing moistened gelatin with hot water?

Note to the Teacher: The gelatin used in these experiments need not be wasted. By adding 4 teaspoons of sugar, a few grains of salt, and 3 teaspoons of lemon juice, a serving of lemon jelly may be prepared.

If you read the directions for preparing gelatin which are printed on the package, you will see that first *cold water* should be added to the gelatin, then *boiling water*. From Experiments 30 and 31 you can readily understand that the cold water merely softens the gelatin, *i.e.*, the gelatin absorbs the water, while the boiling water dissolves it.

If you taste plain gelatin which has had only water added to it, you will find that, although it is not very pronounced in flavor, it does not taste good. Sugar and fruit juice are needed to give gelatin dishes a pleasant taste.

Before adding the sugar and fruit juice to a gelatin dish, one should make sure that the gelatin has been *completely dissolved* in the hot water.

In order to make gelatin mixtures clear, it is advisable to strain them through a cheese cloth. There should be *no bits of undissolved gelatin to strain out* — merely the bits of fruit pulp which may have been in the juice.

Why must gelatin foods be served cold? When gelatin is dissolved in hot water, the mixture looks like plain water. We say it is in the liquid state. The gelatin dishes which we have seen are stiff or solid. In order to change the liquid to a solid, the gelatin mixture must be cooled and chilled. After all the ingredients are added to a gelatin mixture, it is well to cover it and let it stand until it is cool. Then it may be placed in a refrigerator. In cold weather it may be placed outdoors or in a cold cupboard, immediately after it is mixed and covered.

If, after a gelatin mixture has become stiff, it is heated or placed for any length of time in a warm room, it will change again to a liquid. We place a gelatin dish in a cold place to make it stiff and to keep it stiff.

It is, of course, the gelatin dissolved in the water that makes the mixture stiffen after it is cold. If some of the particles of gelatin are not dissolved in the hot water, the gelatin mixture may not become stiff enough when chilled. It is for this reason that one should stir the gelatin mixture until every bit of gelatin disappears. In making a small quantity of a gelatin salad or dessert, it is sometimes necessary to surround the dish containing the mixture with hot water while the gelatin is dissolving, just as was done in Experiment 31.

What is gelatin? You may have seen some veal broth which had been cooled and chilled. The chilled broth may have been in the form of jelly. As explained on page 363, there is present in bones and other meat tissues a substance which when cooked in water will form gelatin. The gelatin which we buy at market is made from bones and other parts of animals.

Gelatin contains proteins. It does not, however, contain the same quality of proteins as is found in meat, milk, and eggs. When we make a pint of a gelatin dessert, we usually add only about 1 tablespoon of the gelatin. Hence in one serving of the dessert we get only about half a teaspoon of gelatin.

Sometimes pieces of fruit and vegetables are added to gelatin for salads and desserts. Gelatin is used also for making meat dishes. Chopped meats are added to the gelatin foundation. The food value of gelatin dishes, of course, is increased when fruit, vegetables, or meat is added.

What kinds of gelatin may be purchased? The manufacturer makes gelatin in the form of thin sheets, and also in granulated form. Housekeepers usually prefer granulated gelatin because this form dissolves in hot water much more quickly. Gelatin in granulated form, however, costs more than sheet gelatin.

One can buy plain granulated gelatin in packages. Sugar, flavoring, and water must be added to it. Some gelatin is sold with a package of acid inclosed in the box — usually tartaric acid. To the gelatin and acid only sugar and water need to be added. Unless solid fruit is used with acidulated gelatin, the dish is not so nourishing as when lemon or other fruit juices are added for flavoring. Lemons are rich in vitamins.

There are other commercial gelatins sold under various trade names which contain gelatin, sugar, acid, and flavoring. To this mixture only water is added in preparing the plain dessert.

In deciding which kind of gelatin to buy, the chief factors to be considered are: (1) nutritive value, (2) flavor, and (3) cost.

The use of fresh fruit juice as flavoring adds to the food value of the gelatin. The difference in flavor may be a matter of personal taste. In determining the difference in cost, be sure to note the *quantity* of jelly that may be prepared from the contents of the package. The different kinds vary in quantity. Although it takes very little time to measure sugar and to extract fruit juice, the kind of jelly to which only water needs to be added does take a little less time than the plain gelatin. Whether this slight saving of time is worth while must be decided by the individual.

How is lemon jelly made? Gelatins differ somewhat in their stiffening properties. As a usual thing a good plan is to follow the proportions printed on the package. Usually 1 tablespoon of granulated gelatin ($\frac{1}{4}$ ounce) makes almost a pint of jelly. The following recipe is based on these proportions.

LEMON JELLY

1 tablespoon granulated gelatin	$\frac{1}{2}$ cup sugar
$\frac{1}{4}$ cup cold water	Speck salt
$1\frac{1}{4}$ cups boiling water	$\frac{3}{8}$ cup lemon juice

Mix the gelatin and cold water. Let stand until the gelatin absorbs the water.

Add the boiling water. Stir until all particles of gelatin have disappeared. Then add the sugar and salt. Stir until dissolved. Finally add the lemon juice. Strain through a cheese cloth.

Rinse jelly molds with cold water. Pour the jelly into the molds and cover. When the jelly is cool, place it in the refrigerator.

To remove the jelly from the molds, quickly dip the mold up to the top in hot water. Then place an inverted plate on top of the mold. Hold the mold and plate together and then turn them over. When the mold is lifted, the jelly should remain on the plate. Yield: 6 servings.

How are some gelatin salads prepared? A salad containing uncooked carrots, canned pineapple, lemon juice, and lettuce has so many virtues that they may be listed.

1. The salad tastes very good.
2. It looks unusually inviting. (The colorful carrot and lettuce help to make it good-looking.)
3. It is very rich in vitamins and other nourishing substances. Let us see what a wealth of vitamins it contains:

	VITAMINS			
	A	B	C	G (See p. 600)
Carrots, young, uncooked	+	+	+	+
Pineapple, canned . . .	+	+	+	*
Lemon juice	+	+	+	+
Lettuce	+	+	+	+

You surely will want your family to have this excellent salad. Let us learn how to make it.

The basis for this salad is lemon jelly. A recipe for this is on page 439. Grated raw carrot and shredded pineapple are added to the jelly. *When any solid material is added to a plain gelatin mixture, it should not be added while the gelatin mixture is hot. The latter should be allowed partly to cool. Then the solid material may be added.* If the jelly is put in a cold place at once, the solid material will not settle to the bottom. It will be uniformly mixed through the gelatin.

PINEAPPLE-CARROT SALAD

- | | |
|--|---|
| 1 cup shredded canned pineapple | $\frac{3}{4}$ cup grated raw carrot |
| 1 recipe lemon jelly (see page 439) | Lettuce |

Carefully drain the sirup from the can of pineapple. Put the sirup in a measuring cup. Add water to make $1\frac{1}{4}$ cups — the amount of boiling water used in the lemon-jelly recipe. Use this mixture of pineapple sirup and water instead of plain water in making the jelly.

After preparing the jelly set it aside to cool. When it is cool and is slightly stiff, add the shredded pineapple and grated carrot. Stir.

Pour into jelly molds. Put in a refrigerator or other cold place to chill and stiffen.

When ready to serve, unmold and place on a bed of crisp and dry lettuce leaves. Serve with mayonnaise (page 291) or cooked dressing (page 292). Yield: 8 servings.

TOMATO-JELLY SALAD

- | | |
|-------------------------------|---|
| 2 cups canned tomatoes | $\frac{1}{4}$ teaspoon paprika |
| 1 slice onion | $1\frac{1}{2}$ tablespoons gelatin |
| 1 clove | $\frac{1}{4}$ cup cold water |
| 2 pepper corns | $1\frac{1}{2}$ cups celery, cut in small pieces |
| 2 teaspoons salt | Lettuce |
| 2 tablespoons sugar | |

Put the tomatoes, onion, spices, and salt in a saucepan. Cover; let the mixture boil gently for 15 minutes. Add the sugar and paprika. Remove from the flame.

Mix the gelatin with the cold water. Add this mixture to the hot tomatoes. Stir until the gelatin is dissolved. Press the mixture through a wire strainer. The tomato pulp should be pressed through the strainer. Set the gelatin mixture aside until it is cooled and is slightly stiffened.

Add the celery. Pour into molds and set aside to stiffen.

Serve on a bed of lettuce. The salad may be garnished with stuffed olives. Serve with salad dressing. Yield: 6 servings.

Why is a gelatin dessert suitable for dinner? At the close of an elaborate dinner, a light dessert, *i.e.*, one not too rich in either fat or sugar, is desirable. Suet puddings, pie, and some kinds of cake make better desserts for a light meal than for a heavy one. Gelatin desserts often contain fresh fruit juices or solid fresh

fruit. There is no more suitable dessert for a heavy meal than fruit. If gelatin contains fruit or fruit juice, it is especially appropriate for a dinner dessert.

How are gelatin fruit desserts made? Just as vegetables were put in lemon jelly (see page 441), so fruits may be added to this jelly.

GELATIN-FRUIT DESSERTS

Prepare lemon jelly (see page 439). When it is slightly stiffened, stir in large fruits cut into pieces or whole berries. Mold and set aside to stiffen as directed previously.

If fresh uncooked pineapple is added to jelly, the gelatin may fail to stiffen. This is because there is an enzyme in fresh pineapple which may liquefy the gelatin. Cooking destroys this enzyme. If pineapple is to be added to gelatin, either use canned pineapple or heat the fresh fruit before adding it to the gelatin.

Variation: Whipped Gelatin.— When jelly is cool and begins to stiffen, whip it with a wheel egg beater. Air beaten into a gelatin dessert makes it look somewhat like snow. Whipping jelly makes a pleasing change. Fruit may be molded in whipped gelatin.

How are some other gelatin desserts made? Snow pudding is an interesting dessert which is more nourishing and palatable than whipped gelatin. To make it, add stiffly beaten egg whites to lemon jelly. In making lemon jelly for this dessert, more sugar and less water are needed than for plain lemon jelly. Nuts may be added to the pudding. Snow pudding should be served with soft custard sauce.

SNOW PUDDING

1 tablespoon granulated gelatin	1 cup sugar
$\frac{1}{4}$ cup cold water	Speck salt
1 cup boiling water	$\frac{3}{8}$ cup lemon juice
3 egg whites	

Make lemon jelly of all ingredients except egg whites, as directed on page 439. Set the jelly in a cool place until it begins to stiffen.

Beat the egg whites stiff. Surround the jelly which has begun to stiffen with ice water. (It is a good plan to have the jelly in an alu-

minum pan. It will chill more readily.) Beat the jelly until it becomes frothy. Add the beaten egg whites and continue beating until the mixture is well blended and chilled.

Mold, set aside to stiffen, and then unmold in the same way as plain jelly. Serve with chilled custard sauce.

To make custard sauce, follow the recipe for custard given on page 316, using 3 egg yolks in making it. Yield: 6 servings.

A *Bavarian cream* is a gelatin mixture to which whipped cream is added.

CARAMEL BAVARIAN CREAM

$\frac{1}{2}$ cup sugar	$\frac{1}{4}$ cup cold water
$\frac{1}{2}$ cup boiling water	Speck salt
1 tablespoon gelatin	$\frac{1}{2}$ cup almonds, cut in pieces
$\frac{1}{2}$ pint whipping cream	

The caramel flavor of this dessert is obtained by caramelizing the sugar. To *caramelize sugar*, heat it (without adding water) until it changes to a light brown sirup. At first the sugar becomes lumpy; then it begins to liquefy. Care should be taken in caramelizing sugar not to let the sirup become too dark (it then has a scorched taste.) Caramelized sugar becomes much hotter than boiling water and should therefore be handled carefully.

Put the sugar in an iron frying pan. Stir continuously until a light brown liquid forms. Cautiously add the boiling water. Let the sugar and water heat over a low flame until the sugar dissolves.

Mix the gelatin and cold water. Then add the hot sirup. Stir the mixture until the gelatin dissolves. Add the salt and nuts.

Set the gelatin mixture aside to cool. Chill by surrounding with ice water until it begins to stiffen. Then fold in the whipped cream. Pour into a mold which has been rinsed with cold water. Set aside in a cold place until it is firm. Unmold the same way as plain jelly.

This dessert is especially good served with sponge cake. Yield: 6 servings.

How is cream whipped? It sometimes happens that when cream, which is rich in fat, is whipped, butter is formed. Usually this is because the cream is not cold enough. Cream for whipping must be chilled. If it is whipped in warm weather, it should be surrounded with ice water during the whipping process.

Sometimes the cream container will not allow the heat from the cream to pass through to the surrounding ice water. Then the cream will not become sufficiently chilled. An aluminum utensil is best to use. Tin is good. Granite or enamel is not so good. Earthenware or glass is very unsatisfactory.

When whipping cream:

1. Use heavy cream (*i.e.*, cream containing at least 25% fat) from 12 to 24 hours old.
2. Have it very cold.
3. In warm weather, place the cream in a metal container and surround the container with ice water while beating.
4. Use a wheel-type beater.

What are drop cookies? Cookies are very good with fruit, gelatin desserts, and many other kinds of dessert. One kind of cookie is made from a batter somewhat like that of gingerbread although it is a little stiffer, because less liquid is used. The batter may be dropped from a spoon in little mounds on to a greased pan. Such cookies are called *drop cookies*.

Drop cookies are easier to make than those that are cut with a cookie cutter. It is well to learn to make drop cookies before trying the other kind.

A wholesome cookie may be made from either Graham or whole-wheat flour and dates. You will be sure to like them; your family will doubtless enjoy them. The recipe follows:

DATE COOKIES

1 egg	2 or 3 teaspoons baking powder
$\frac{1}{3}$ cup thick sour milk	(See footnote, page 88.)
1 cup light brown sugar	$\frac{1}{4}$ teaspoon baking soda
$\frac{1}{3}$ cup fat	1 cup Graham or whole-wheat flour
1 cup white flour	1 cup dates, stoned and cut into
$\frac{1}{2}$ teaspoon salt	slices
	1 teaspoon vanilla

Sift some white flour; measure 1 cup. Add the leavening materials and salt to it. Stir the Graham or whole-wheat flour, then measure it.

Beat the egg in a mixing bowl. Add the sour milk and sugar. Beat

until they are well mixed. Melt the fat; add it to the egg mixture. Mix.

Wash the dates; dry them with a clean towel; stone and slice them.

Through a sifter add the white-flour mixture to the egg mixture. Then add the Graham or whole-wheat flour, dates, and vanilla. Beat well until all are thoroughly mixed.

Drop the mixture on to greased baking sheets or shallow pans. Have about an inch of space between the cookies. Bake in a *hot oven* — $375^{\circ} F.$ — for 10 to 15 minutes.

After removing them from the oven, let the cookies stand for a minute or two. Then loosen them from the pan and place them on a cake cooler. When they are entirely cold, store them in a tightly-covered tin box. Yield: 24 cookies.

How are cut cookies made? If cookies are to be cut into rounds or other shapes, a dough must be made. One could not cut a thin flour mixture with a knife or cookie cutter so that the cookie would hold its shape.

If a cookie dough were made with only a little fat, the cookie would seem tough, somewhat like bread. More fat is needed to shorten the dough or to make it tender. Because more fat is used in making cut cookies than in making gingerbread and drop cookies, the fat is not melted before it is added to the other ingredients. You must soften the fat by creaming it, *i.e.*, working and beating it with a spoon or spatula.

CUT COOKIES

$\frac{1}{2}$ cup butter or other fat	2 cups soft-wheat or pastry flour
1 egg	1 or 2 teaspoons baking powder
$\frac{3}{4}$ cup sugar	(See footnote, page 88.)
2 tablespoons sour cream or milk	$\frac{1}{8}$ teaspoon baking soda
1 teaspoon grated nutmeg or vanilla	$\frac{1}{2}$ teaspoon salt

Sift some flour, then measure 2 cups. Add the other dry ingredients to the flour.

Put the fat in a mixing bowl. It is well to warm the fat or let it stand in a warm room so it will not be so difficult to soften. Soften the fat by working and beating it with a spoon or spatula.

Beat the egg. Add the beaten egg to the fat. Mix well. Then add the sugar and milk. If vanilla is used, add it now. Beat until all are

well blended. You should not be able to see the individual grains of sugar in the mixture.

Through a sifter, add the dry ingredients to the egg mixture. Mix all ingredients very thoroughly, using a knife.

Shape the dough into a cylinder of the diameter you desire in your cookies. Place the cylinder on a plate and put it in the refrigerator or other cold place. Let it stand for several hours or until it is chilled.

Flour a pastry board slightly. Place the dough on the board and cut the dough into slices — thick or thin, as you desire your cookies.

Place the slices on a greased baking sheet or shallow pan and bake in a *hot oven* — 375°F. — for *10 to 15 minutes*. Remove from the pan, cool, and store as directed for date cookies, page 445. Because cut cookies are chilled, they are also called *icebox cookies*.

The advantages of slicing cookies as directed in this recipe rather than rolling them out and cutting with a cookie cutter are: (1) much time is saved, and (2) the dough is handled less.

Yield: *3 dozen cookies*, thin, $2\frac{1}{2}$ inches in diameter.

Variation: Caramel Cookies. — For the $\frac{3}{4}$ cup of white sugar, substitute 1 cup of brown sugar. Chopped nuts may be added. Use $\frac{1}{2}$ cup for this recipe.

SUMMARY

Gelatin is a hard, unpalatable, transparent substance prepared from bones and other animal tissue.

Gelatin contains *proteins* of poor quality.

Cold water swells and softens gelatin; *hot water* dissolves it.

Gelatin dissolved in water or other liquid *stiffens* the liquid when *cold*.

One tablespoon of granulated gelatin stiffens about *1 pint of liquid*.

Because gelatin is lacking in flavor, it is usually *sweetened* with *sugar* and *flavored* with an *acid* such as *tartaric* or with *fresh fruit juice*. Gelatin is a more valuable food when it contains fresh fruit juices, because the latter are generally rich in vitamins and mineral matter.

Since only a small quantity of gelatin is contained in one serving of the gelatin dish, the food is *valuable chiefly* for the *sugar* and *fresh fruit juice* added to it.

Fruits and vegetables, usually cut into pieces or chopped, may be molded in a gelatin mixture. In order that the *solid food* may be *uniformly distributed* through the gelatin mixture, the latter should be cooled and allowed to stiffen slightly before the solid food is added.

Snow pudding is a gelatin mixture containing beaten egg whites.

Bavarian cream is a gelatin mixture containing whipped cream.

Drop cookies are shaped by being dropped, as batter, on a baking pan.

Cut cookies are shaped by being cut, as dough, in slices. These cookies usually contain more fat than drop cookies.

REVIEW QUESTIONS AND EXERCISES

Copy the following sentences, writing a letter, word, or number in place of each blank.

1. Vitamin — is destroyed by cooking.
2. Because meats are lacking in vitamin C, — vegetables are good foods to use with meats.
3. Hot salad dressing — cabbage.
4. Gelatin is dissolved in — water.
5. One tablespoon gelatin will stiffen — — liquid.
6. Gelatin containing uncooked pineapple fails to stiffen because there is a — in pineapple.
7. When cream is whipped in warm weather, its container should be surrounded with — —.
8. Cream that is whipped in warm weather should be put in an — container.
9. Cream for whipping should contain at least — per cent fat.
10. Cookies should be baked at — degrees F.
11. Cut cookies are made from a — mixture than drop cookies.
12. Bavarian creams always contain whipped cream and —.
13. Gelatin in — form will dissolve more quickly than sheet gelatin.
14. Foods rich in vitamins in pineapple-carrot salad are —, —, —, and —.
15. Canned tomatoes as well as fresh tomatoes are especially valuable for their mineral matter and —.

HOME WORK

1. Write a list of seven salads—one for each day of the week—suitable to serve for dinner at your home.
2. State why you think each salad would be suitable for dinner.
3. Refer to the suggestions for desserts given on pages 311-326, as well as to the suggestions given in this chapter. Write a list of seven desserts—one for each day of the week—suitable to serve for dinner at your home.
4. Prepare at least one salad and one dessert at your home.

CHAPTER XXXII

PLANNING AND SERVING A DINNER — COUNTING THE COST OF FOODS — CALCULATING FOOD VALUES — CARVING

Can you answer these questions? If not, look for the answers as you study this chapter.

1. In carving meat should one cut enough for all the guests before serving them?
2. How should a steak containing a bone be carved?
3. What kind of cover should be used on a table for a formal dinner?
4. Why does a carving fork have a guard between the handle and prongs?
5. A rolled rib roast is usually held in place by strings. Should all the strings be removed before you start to carve?
6. State two reasons for cutting meat *across* the grain.
7. How thick should a roast be sliced?
8. What is the choicest part of a ham?
9. In carving a roast turkey what part should you cut first?
10. How many cups are there in a pound of butter? What is the cost by the cup? by the tablespoon?

How does dinner differ from luncheon or supper? When meat is used but once a day, it is usually served for dinner. It forms the *main dish* of the main course. Serving meat for dinner and not for luncheon or supper is one of the differences between these meals.

Another difference is that dinner is the more elaborate meal. A greater variety of foods is usually served at dinner than at the simpler meal. If a dinner is served in courses, there are more courses for dinner than for luncheon or supper.

Some dinner plans:

PLAN I		PLAN II	PLAN III
Main course	Meat or fish	Clear Soup or Fruit	Clear Soup or Fruit
	Vegetables	Cocktail	Cocktail
	Bread and butter		Fish
Salad or Dessert		Main course	Main course
Beverage			
		Meat	Meat
		or	Vegetables
		Fish	Bread with-
		Vegetables	out butter
		Bread with	
		or without	Salad
		butter	Dessert
		Salad or Dessert	Beverage
		Beverage	

It should be noted that for the very elaborate dinner, both fish and meat are served. The portion of fish served in such a dinner is usually small. In an elaborate dinner, bread is sometimes served without butter.

What shall we have for dinner? We can follow the plans given in the foregoing in planning dinner menus. But we have to decide what particular kind of meat, vegetable, salad, etc. we shall use. In order to choose as easily and quickly as possible, it is a good plan to have lists of these different foods, that is, a list of meats, a list of vegetables, a list of salads, etc.

The lists may be placed in a book. If a book is used, it is well to leave some blank space or pages between the lists so that additional foods may be placed on the lists. As more foods are learned, the lists may be increased.

Filing cards are convenient for listing the foods. The cards are convenient because they may be indexed. Additional cards may be inserted as the lists increase.

Make lists of the foods given in this text and elsewhere. The lists should include:

Soups (see pages 237-240, 247-249, 377)

Meats (see pages 101, 365-370, 378-401)

Fish; meat substitutes (see pages 293, 297, 406-409, 96-98, 256-261)

Breads (see pages 88-91, 302-309, 429-432)

Vegetables (see pages 279-284, 415-421)

Salads (see pages 290-295, 440-441)

Desserts (see pages 312-324, 441-446, 551-571)

Beverages (see pages 68-76, 578)

Sweets (see pages 577-582)

If long lists are made, it is a good plan to separate them into groups. Desserts, for example, may be classified as cooked desserts, uncooked desserts, frozen desserts. Meat lists may be separated into beef, veal, lamb or mutton, and pork.

Plan a dinner that would be suitable to cook and serve at school. Test the menu by referring to the method of testing given on pages 331-335.

How can we count the cost of meals? In getting a meal, we may use a pound of flour, a few spoonfuls of butter, or other material. How are we to count the cost of these? There are general things we must know when counting the cost of food:

1. The cost by the pound, or quart, or dozen, or package, or can.
2. Measurement in cupfuls of a pound, a quart, a package, a can.

The *cost* by the pound, etc., should be noted when the food is bought. On package and canned goods the *weight* is given. We should note the weight of all packages and cans. The *measurement* in cupfuls of a *package* may be obtained by actually measuring the contents of a package. The *measurement* in cupfuls of a *can* may be obtained from the information given on page 242. The measurement in cupfuls of *foods bought by bulk* may be obtained from the table given on page 587.

The table on the next page will prove helpful in determining the cost of foods. The x's in a space indicate that it is not necessary to fill in that space. Calculate the cost to two decimal places.

FOOD	COST BY THE POUND, QUART, ETC.	CUPFULS IN POUND, QUART, ETC.	COST BY THE CUPFUL	COST BY THE TABLE- SPOON- FUL	COST BY THE TEA- SPOON- FUL
Apricots, dried				¹ XXXX	XXXX
Baking powder			XXXX	XXXX	
Beans, dried				XXXX	XXXX
Bread		2	XXXX	XXXX	³
Breakfast cereal				XXXX	XXXX
Butter				XXXX	XXXX
Cheese (cut in bits)		About 3		XXXX	XXXX
Chocolate (1 square = 1 ounce) . .			⁴	XXXX	XXXX
Cocoa				XXXX	
Coffee				⁵	XXXX
Corn meal				XXXX	XXXX
Cornstarch			XXXX		XXXX
Cream				XXXX	XXXX
Dates				XXXX	XXXX
Eggs		XXXX	XXXX	⁶	XXXX
Flour, white					XXXX
Flour, whole-wheat				XXXX	XXXX
Flour, Graham				XXXX	XXXX
Gelatin			XXXX		XXXX
Lard or butter substitute					XXXX
Macaroni				XXXX	XXXX
Meat (beef), chopped				XXXX	XXXX
Milk				XXXX	XXXX
Molasses				XXXX	XXXX
Potatoes (See page 277)		7	XXXX	⁸	XXXX
Prunes, dried				XXXX	XXXX
Raisins, dried				XXXX	XXXX
Rice				XXXX	XXXX
Salt, table				XXXX	
Spices (ounce)		(12 teaspoons in 1 ounce)			
Split peas				XXXX	XXXX
Sugar, brown				XXXX	XXXX
Sugar, granulated				XXXX	XXXX
Sugar, loaf (See page 608)		9	XXXX	¹⁰	XXXX
Sugar, powdered				XXXX	XXXX
Tapioca					XXXX
Tea		6		XXXX	
Vanilla (ounce)		(6 teaspoons in 1 ounce)			
Vegetable oil					XXXX
Vinegar					XXXX

¹ The x's in a space indicate that it is unnecessary to fill in the space.² Slices in a loaf.³ Cost of 1 slice.⁴ Cost of 1 ounce.⁵ Cost of heaping tablespoon (1 heaping tablespoon = 3 level tablespoons).⁶ Cost of 1 egg.⁷ Number in 1 pound.⁸ Cost of 1 potato.⁹ Number in 1 pound.¹⁰ Cost of 1 lump.

How can we calculate the food value of a day's food? In a previous lesson (page 329) we learned something about counting calories, considering vitamins, and the quality of proteins. In judging whether the food we select is meeting the needs of the body, the meals of an entire day should be considered. Let

FOOD	NUMBER OF SERVINGS	TOTAL CALORIES	CALORIES FROM PROTEINS	VITAMINS			
				A	B	C	G (Seep. 600)
<i>Breakfast:</i>							
Peaches . . .	1	33	2	+ to ++	+ to ++	++	+ to ++
Oatmeal . . .	1	67	11	- to +	++	-	+
Cream, thin . . .	2	100	4	+++	++	- to +	+++
Graham bread . . .	2	66	10	+	+++	?	+
Butter . . .	1	100	1	+++	-	-	-
Milk . . .	1	170	34	+++	++	+	+++
<i>Luncheon:</i>							
Cream of corn soup . . .	1	198	23	*	*	*	*
Lettuce . . .	1	12	3	+ to ++	++	++	++
Salad oil . . .	1	100	-	?	-	-	-
Boston brown bread . . .	2	134	14	*	*	*	*
Butter . . .	2	200	2	+++	-	-	-
Banana . . .	1	75	4	+ to ++	+ to ++	++	++
Milk . . .	1	170	34	+++	++	+	+++
<i>Dinner:</i>							
Beef, round . . .	1	100	48	+	++	- to +	++
Spinach . . .	1	25	3	+++	+	++	++
Potatoes . . .	1	100	11	+	++	++	+
Cabbage . . .	1	10	2	+	++	+++	++
Salad oil . . .	1	100	-	- to +	-	-	-
Boston brown bread . . .	1	67	7	*	*	*	*
Butter . . .	1	100	1	+++	-	-	-
Prunes . . .	1	150	4	++	++	-	++
Milk . . .	1	170	34	+++	++	+	+++
<i>Total for the day</i> . . .		2247	252				

us examine the food an average girl 13 or 14 years old, requiring 1950 to 2250 calories (see page 329) each day, should eat in a day's three meals. From the table above or from the table on pages 600-609 we can find the *total calories* and *calories from proteins* produced by each food. We can also find from the table how the vitamins are distributed in the foods.

Note that the *total calories*, 2247, meet the requirement of a pupil 13 or 14 years old. Also notice that the *calories from the proteins*, 252, are about 11% of the *total calories*. Ten per cent, as stated on page 331, is the correct amount of proteins. When much milk is used, the protein usually amounts to more than 10%. This is believed to be satisfactory provided the percentage does not exceed *fifteen*. The *quality* of most of the protein in these meals is excellent.

Is there enough calcium, phosphorus, and iron in these meals? Scientists have found that the food eaten in a day should furnish definite amounts of calcium, phosphorus, and iron. Since the amounts are so small, they cannot be conveniently expressed in ounces. The *gram* is commonly used to express these amounts. A gram is about $\frac{1}{28}$ of an ounce. A piece of loaf sugar weighs about 6 grams.

Boys and girls from 3 to 14 years need more calcium and less phosphorus than an average adult. The amount of iron needed is the same for all average persons:

Calcium	{	. . . . Children (3 to 14 years)	. . . . 1 gram
		. . . . Adults	. . . . 0.67 gram
Phosphorus	{	. . . . Children (3 to 14 years)	. . . . 1 gram
		. . . . Adults	. . . . 1.32 grams
Iron	. . . . .	Children and Adults	. . . . . 0.015 gram

In the table on page 454 are given the percentages of these amounts furnished by each serving of food in the menus of the preceding table. If the food eaten in a day furnishes enough calcium, phosphorus, and iron, the percentages of each should add up to at least 100.

Note that the total percentages of calcium, phosphorus, and iron are more than 100.

These meals appear to furnish all the necessary materials for health. Notice that $1\frac{1}{2}$ pints of milk are included. This with the cream and milk that is used in the cooked foods makes about a *quart a day*. Two salads also are included in the meals.

FOOD	NUMBER OF SERVINGS	PERCENTAGE OF THE AMOUNT NEEDED DAILY OF		
		Calcium	Phosphorus	Iron
<i>Breakfast:</i>				
Peaches	1	0.6	1.9	1.6
Oatmeal	1	1.1	6.6	4.3
Cream, thin	2	5.0	4.4	0.6
Graham bread . . .	2	1.2	5.4	4.2
Butter	1	0.2	0.2	0.2
Milk	1	29.5	22.7	3.8
<i>Luncheon:</i>				
Cream of corn soup	1	10.5	18.0	6.8
Lettuce	1	2.7	2.7	6.3
Salad oil	1	—	—	—
Boston brown bread	2	7.4	11.0	11.6
Butter	2	0.4	0.4	0.4
Banana	1	0.7	2.3	3.0
Milk	1	29.5	22.7	3.8
<i>Dinner:</i>				
Beef, round	1	0.7	12.5	12.0
Spinach	1	7.0	7.1	25.0
Potatoes	1	1.6	6.9	10.4
Cabbage	1	1.4	0.9	2.3
Salad oil	1	—	—	—
Boston brown bread	1	3.7	5.5	5.8
Butter	1	0.2	0.2	0.2
Prunes	1	2.7	5.2	10.0
Milk	1	29.5	22.7	3.8
<i>Total for the day</i> . .		135.6	159.3	116.1

How is the table set for dinner? Shall a tablecloth or runners or doilies be used for dinner? Before the World War, for a formal dinner only a tablecloth that covered the entire table was thought to be correct. During the war and for a few years afterward, more informal table setting was followed. Runners and doilies were used for dinner. Once again, the large cloth is considered proper for a formal dinner.

In the home where there is no one other than the family to help in serving a meal, it seems only sensible to use the smaller

linen covers on the table. Less material is needed and less time for laundering is required.

The same rules for placing the silver and dishes on the table should be followed for setting the dinner table as for the luncheon or supper table. Sometimes raw oysters are served as the first



Oneida Community, Limited

FIGURE 129. A TABLE SET FOR A FORMAL DINNER

The table is entirely covered with a linen cloth, as is correct for a formal dinner. Notice the oyster fork beyond the soup spoon. Also notice the folding of the napkin. This differs from the rectangular folding and is more pleasing than the triangular shape. The loose folds on the two edges of the napkin repeat the parallel lines of the flat silver.

As the meal is to be served in the evening, candles are appropriate decorations. The candles should be lighted before the dinner is served.

course of a dinner. A small fork known as an *oyster fork* is needed for eating uncooked oysters. This fork should not be placed on the left side of the cover with the other forks. It may be placed either at the extreme right beyond the spoons (see Figure 129) or on the service plate holding the glass which contains the oysters.

As explained on page 217, larger napkins are used for a formal dinner than for luncheon or supper.



A

B

FIGURE 130. CARVING SETS

A, knife and fork for cutting steak.

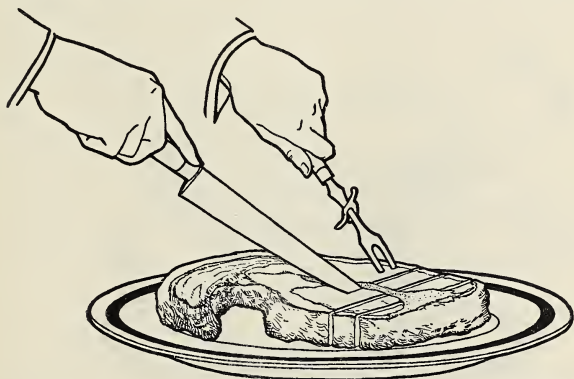
B, knife and fork for carving a roast or poultry.

Notice the *guard* on both pieces of the steak set and the larger fork. What is the purpose of a guard on a carving knife or fork?

How is a dinner served? How is meat carved? Any of the three styles of serving described on pages 118 and 339 may be followed in serving dinner.

When a roast of meat or of chicken is served for dinner, and the family style of serving is followed, the meat is cut into pieces or *carved at the dining table*. If the Russian style of serving is followed, the meat must be *carved in the kitchen*. Whether meat is carved in the kitchen or at the dining table, it should be cut with care.

If a large roast or a turkey is to be carved, it is well to place the meat on a *large platter*. As the pieces of meat are cut, there



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FIGURE 131. CARVING A STEAK

When a steak containing a bone is carved, the bone should first be cut out of the meat. Then the meat may be cut into pieces.

Notice how this porterhouse steak is cut so as to divide the tenderloin into several pieces.

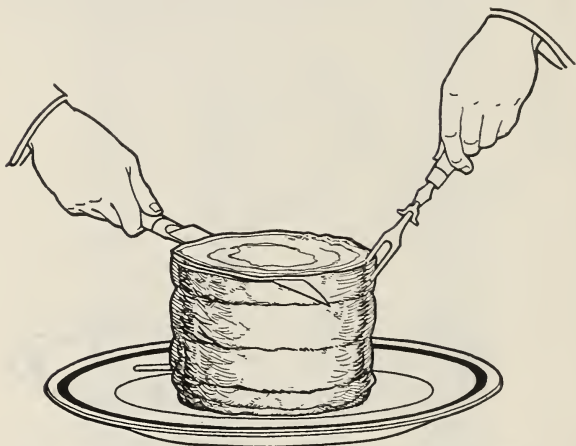
is room to place them on the platter. If a large platter is not used, it is a good plan to place beside the platter an extra platter or large plate on which pieces of meat may be put as they are cut from the roast or poultry.

A large fork thrust into the meat helps to keep the meat from slipping while it is being cut. A *sharp strong knife* is needed for

carving. Carving knives come in several sizes. (See Figure 130.)

Some suggestions for carving are:

1. Thrust the *fork* firmly into the meat.
2. Look at the meat. See if you can tell in which *direction* the *fibers* run. Always cut *across* the *fibers* or grain of the meat. Meat thus



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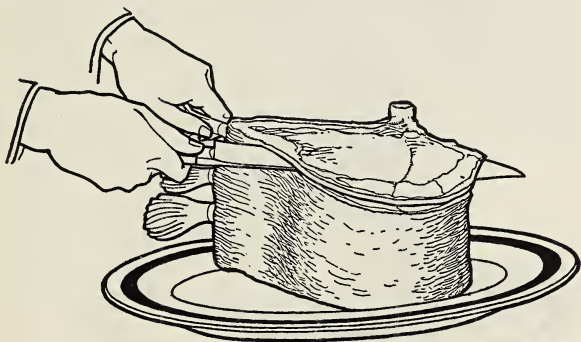
FIGURE 132. CARVING A ROLLED ROAST

A rolled roast is easy to carve, for it has no bones. Before starting to carve, cut only the string near the top of the roast. Then, when necessary, cut the rest of the strings. Cut across the grain of the meat, slicing the meat thin.

carved will taste better and be more tender than that which is cut with the grain of the meat.

3. *Slice* meat without bone in slices a half inch or less in thickness.
4. Cut with a *firm, steady cut*; do not use the carving knife as a saw.
5. Cut *enough meat* for all the guests before serving the individual portions.

6. *Cut the meat neatly* so that there will be as few scraps as possible.
7. If one part of the meat is more choice than another, *divide* it so that each person served will have some of the choice portion as well as that which is not so good.
8. Place each serving of meat on the plates so that it *looks as attractive* as possible.
9. When all the guests have been served, *arrange* the meat left on the platter *as neatly as possible*.



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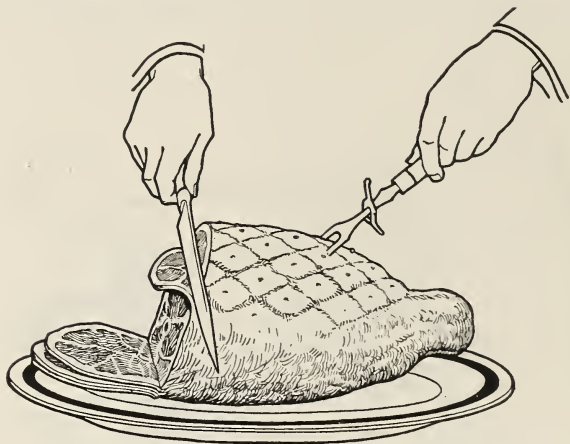
FIGURE 133. CARVING A STANDING ROAST

A standing rib roast is harder to carve than a rolled roast because of the bones. Turn the meat on the platter so the ends of the rib bones point toward you. Starting at the skin side, cut toward the bone. After several slices are cut, with the point of the knife cut along the edge of the bone so as to loosen the slices.

What consideration should be shown the carver? It is not always easy to carve meat. It is especially difficult to carve a roast turkey or chicken. Often these meats are served when guests are present. If the guests watch every move of the carver, he is apt to become embarrassed or uncomfortable. Under such circumstances the carver usually does not do so well as when he works unnoticed. The guests should pay no atten-

tion to the carving. Some topic of conversation should be started by the hostess or one of the guests so as to engage the attention of the other guests.

When a turkey or chicken is being carved, the carver often asks each guest what part he prefers. Each guest should give



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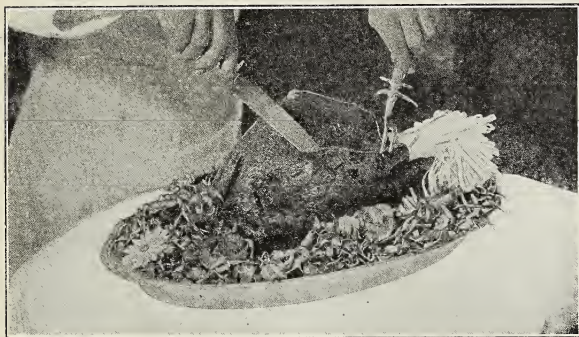
FIGURE 134. CARVING A HAM

The easiest way to carve a whole ham is to start at the larger end. The choicest slices of a ham, however, are cut from the thickest part. This part may be carved first. Cut the meat in thin slices on each side of the bone. Then, with the point of the knife, loosen the slices from the bone.

his preference unless he thinks that too many of the other guests will want the same part. Then the guest may say that any part is acceptable. When such a reply is made, it is well for the carver to serve a piece of both white and dark meat.

How are different cuts or kinds of meat carved? A study of Figures 131, 132, 133, and 134 will help you to learn how to carve meats.

How is roast chicken or turkey carved? A *roast chicken or turkey* is more difficult to carve than other meats because of the joints. As stated on page 398, poultry should be placed on a platter breast up. The method of carving turkey is shown in Figures 135, 136, and 137.



Modern Priscilla

FIGURE 135. THE FIRST STEP IN CARVING A TURKEY—REMOVING THE LEG

Cut through the skin and meat covering the joint. In order to break the joint it is often necessary to grasp the end of the leg with the fingers and pull it away from the body. (The paper frill over the end of the drumstick of this turkey makes it easier to take hold of the bone.)

The leg should then be separated into drumstick and second joint by cutting through the joint uniting the two parts. If the turkey is large, the second joint may be separated into two pieces by cutting the meat along the bone.

SUMMARY

Chief difference between luncheon or supper and dinner:

1. Main dish of dinner usually meat
2. Greater variety of food in dinner
3. More courses for dinner

To count cost of a meal:

1. Know cost by the pound, or quart, or dozen, or package, or can.
2. Measure in cupfuls amount of a pound, quart, package, or can.

To compute the food value of a day's food, consider:

1. Total calories
2. Calories from proteins
3. Distribution of vitamins
4. Amount of calcium, phosphorus, and iron

Table linen for dinner:

1. Tablecloths covering entire table
2. Dinner napkins — larger than those used for breakfast or luncheon



Modern Priscilla

FIGURE 136. THE SECOND STEP IN CARVING A TURKEY — REMOVING THE WING

Cut through the joint next to the body, as you did for the leg. Sometimes the tip is cut from the wing before roasting. If not, it may be removed when the turkey is carved. The tip of the wing should not be served. Why? What use can be made of it?

If more than half the turkey is needed for serving the meal, the other leg and wing should be removed.

Carving meat:

1. The platter should be larger than the piece of meat.
2. Have a sharp carving knife.
3. Cut the meat across the fibers or grain.
4. Steaks with bone: Cut the meat along the bone, then remove the bone; cut the meat into pieces.

5. Rib roast with bone: Slice the meat toward the bone; then cut slices from the bone.
6. Roast chicken or turkey: Remove the wings and legs; separate the legs into first and second joint; slice meat from the breast.

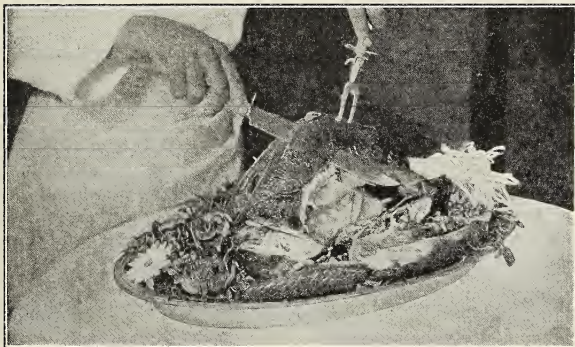
*Modern Priscilla*

FIGURE 137. THE THIRD STEP IN CARVING A TURKEY—SLICING THE BREAST

Stick the fork into the breast near the highest point of the breast bone. With the knife held in a slanting position, cut thin slices from the breast.

Cut enough pieces to serve the guests once. When ready for the second helping, cut more pieces.

REVIEW QUESTIONS AND EXERCISES

Each of the following statements is completed in more than one way, only one of which is correct. Read each statement carefully and choose the correct word or phrase to complete it. Then copy the statement, including only the correct conclusion.

1. For the first course of a hearty dinner serve (a) cream soup (b) meat broth.
2. In a quart of flour there are (a) 2 cups (b) 3 cups (c) 4 cups.
3. A pound of butter measures (a) 1 cup (b) 2 cups (c) 3 cups.
4. For a formal dinner cover the table with (a) doilies (b) runners (c) a tablecloth.

5. Oyster forks should be placed (*a*) on the left side of a cover (*b*) on the right side of a cover.
6. In carving meat cut (*a*) across the fibers (*b*) along the fibers.
7. When a person is carving meat at the dining table (*a*) talk about carving (*b*) look at the carver (*c*) appear not to notice the carving.
8. In carving roast chicken first (*a*) slice the breast (*b*) remove the wings and legs.
9. A pound of granulated sugar measures (*a*) 1 cup (*b*) 2 cups (*c*) 3 cups.
10. A bushel of white potatoes weighs (*a*) 45 pounds (*b*) 50 pounds (*c*) 60 pounds.

HOME WORK

1. Plan at least two dinners suitable for serving in your home.
2. Following the plan given on pages 331-335, test the dinners. Show in writing how the meals meet the requirements of a well-planned dinner.

UNIT 5: HEALTH AND CHILD CARE

CHAPTER XXXIII

KEEPING WELL

Can you answer these questions? If not, look for the answers as you study this chapter.

1. How often should the teeth be brushed?
2. How many glasses of water should be drunk each day?
3. Why do many people have more colds in winter than in summer?
4. Why is the chewing of bread crusts and other hard food good for the teeth?
5. Even though much of the skin is covered with clothes, why is frequent bathing necessary for cleanliness?
6. Why should we sleep with the windows open at night?
7. What may be one cause of sallow skin?
8. How can colds be prevented?

Is health wealth? "Health is wealth" is an old saying. What kind of wealth is health? Health may bring that which is more valuable than money — *happiness*. To be glad that you are alive is one of the greatest joys of life. Happiness is the choicest kind of riches.

The person that is healthy is full of "pep." He works and plays with vim. He finds *pleasure in work*. The man or woman, boy or girl who likes to work is rich indeed.

The ability to work may bring *success*, which in turn means riches in money. But it may also bring the joy that comes in doing something for another. To be of *service to another* is one of life's greatest satisfactions.

Health then may open the door to happiness, to pleasure in

work and play, to success, and to service for others. Surely health is wealth. It is well worth having.

How can we have health? There are boys and girls who are well and strong from babyhood. Such young persons are wise if they *guard that health* and do not let it slip away. There are other boys and girls who have not had a good start in health. Their problem is to *build up their health*. Whether your concern is to hold fast to your health or to build it up, you can do much for yourself by forming habits of right living.

Health has been called a *game*. Just as there are rules for playing basket ball and other games, so there are rules for playing the game of health so as to win. Follow the *rules of the game*:¹

1. Take a full bath oftener than once a week.
2. Brush the teeth at least twice every day.
3. Sleep long hours with a change of air, but no draft.
4. Drink as much milk as possible, but no tea or coffee.
5. Eat some vegetables and fruits every day.
6. Drink six or eight glasses of water a day.
7. Play part of every day outdoors.
8. Have a bowel movement every day.

The rules of the game of health are not hard to follow. Many of them are pleasant. Let us learn more about following these rules.

Why is bathing necessary for health? You doubtless know from studying physiology that there are very tiny openings in the skin called pores. You also know that there are sweat glands in the skin. The pores are the openings of the sweat glands.

Through the sweat glands, sweat or perspiration is emptied out on the surface of the skin. Sweat is water in which some of the wastes of the body are dissolved. When it comes out on the surface of the skin, the water soon evaporates and the waste material is left on the skin. It is necessary not only to wash the

¹ Adapted from rules of the American Child Health Association.

face and hands so as to get rid of body wastes as well as dirt, but to wash the whole body. There are sweat glands all over the body. It is believed there are two or three million of them.

The refreshed feeling that comes after a bath makes bathing worth while for this reason alone. Then, too, frequent bathing is necessary to keep the body free from odors. Sweat has an unpleasant odor. The attractiveness of a well-dressed person may be entirely spoiled by the odor of sweat.

Why keep the teeth clean and sound? Perhaps you admire pearls. A piece of jewelry set with pearls or a string of pearl beads may add a pleasing touch to a girl's appearance. But pearly teeth are far more attractive than jewelry or beads. Most persons show their teeth when smiling. Clean white teeth adorn a smile; stained or dirty teeth detract from it.

If you want to make yourself as attractive as possible *brush your teeth*. Place the tooth brush firmly on your teeth on the margin of the gum. Brush away from the gums or roots of the teeth. Brush your teeth both inside and out. Also brush the roof of your mouth, your tongue, and gums. Keep your tooth brush clean. Rinse it in hot water. Put it in a clean place.

A person without teeth cannot talk well. The absence of a tooth here and there interferes with eating and with thorough chewing of food. It also detracts greatly from a good appearance. Sound as well as clean teeth are needed to make one look well.

To keep your teeth sound, visit the dentist often, once every six months. Do not let a cavity in your tooth become very large. Just as a stitch in time saves nine, so a visit to the dentist in time may save painful dental work and expense. Then, too, decayed teeth are dangerous. Doctors often find that a serious disease is the result of a decayed tooth.

Are brushing and visits to the dentist all that are needed to keep teeth in good condition? A baby's teeth will not grow and

develop properly if the baby is not given *proper food*. A baby must have foods that are rich in minerals, especially calcium and phosphorus. Teeth as well as other parts of the body must be nourished. Milk and vegetables contain materials which *nourish the teeth*. (Is it not surprising how many reasons there are why we should drink milk and eat vegetables?)

If you would keep your teeth in good condition, you should not only eat tooth-building foods but you should eat hard foods. Do not, of course, abuse the teeth by cracking nuts. Bread crusts, raw fruits and vegetables including their skins, and whole grains will help to make teeth strong. If the teeth are given work to do in chewing hard foods, plenty of blood is sent to the inside of the teeth and the teeth are nourished and become stronger. Hard and coarse foods as well as tooth-building foods are needed to keep the teeth in good condition.

Why do we need sleep? Sleeping time is growing time. It is also repairing time. The body is refreshed after a good night's sleep.

Plenty of rest at night is needed (1) to grow, (2) to have a good disposition, (3) to think and to work, and (4) to look well.

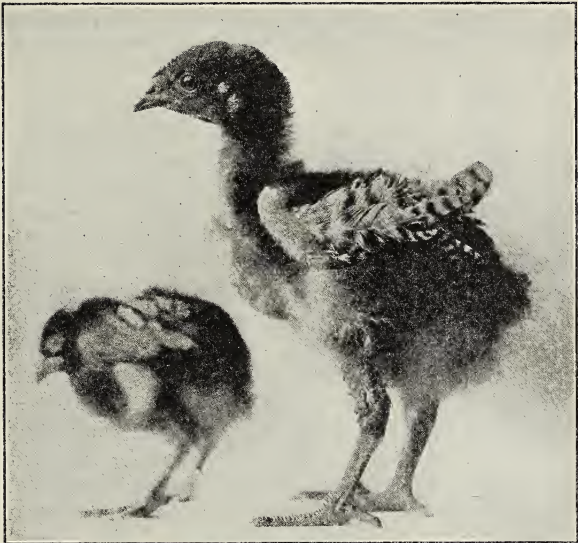
Pupils of high school age should sleep at least nine or ten hours every night. Adults need at least eight hours of sleep. The best way to get the proper amount of sleep is to :

1. Go to bed at a regular time.
2. Have the room quiet.
3. Have a change of air, but no draft on the sleeper.
4. Avoid eating between the evening meal and bed time.
5. Use warm, but light bed covering.
6. Sleep either without a pillow or with a low pillow.
7. Think of pleasant things before going to sleep.
8. Relax so that you go to sleep very soon after getting into bed.

Why do we need fresh air and sunshine? You have perhaps been in a room in which the air was heavy and foul. If you stayed in the room for any length of time, you became listless or

drowsy. In such a room, it was hard for you to think and work. *To feel our best and think our best, fresh air is needed.*

In the daytime, we should ventilate our homes so as to get fresh air. If we can be in the sunshine outdoors, both the air



E. B. Hart, University of Wisconsin

FIGURE 138. THE EFFECT OF SUNLIGHT ON GROWTH

These two chicks are of the same age and were fed the same food. The larger chick was exposed to sunlight a half hour each day for almost two months. The smaller chick was not placed in the sunlight. At the beginning of the experiment both chicks weighed about the same. At the close, the larger chick weighed more than twice as much as the smaller one.

Sunlight makes human beings grow as well as chicks. It is needed for health.

and sunshine will help us grow. When you examine Figure 138 you will realize how important sunlight is.

During the night, the temperature should be regulated according to conditions of the air outside. Drafts are to be avoided, but the air should move somewhat to avoid the accumulation of unpleasant odors.

Since sleeping time is growing time, to get the greatest benefit, children need to be comfortable and relaxed. The temperature should be neither hot nor cold — about 68° to 70° F. The relative humidity should be 40 to 50 per cent.

Does food make a difference in our looks? Every normal girl wants to look as well as she can. In an effort to improve their looks, some girls use rouge, cold cream, and other cosmetics. Wholesome food is a much better aid to beauty than any artificial beautifier. It is the best cosmetic known. The hints on page 471 were prepared for girls who want to improve their looks.

How much water do we need daily? Some one has said: "Use water externally, internally, and eternally." It is so simple and easy to drink water. Yet, what a difference the drinking of plenty of water makes in the way we feel and act.

We are advised to drink at least four glasses of water a day, preferably six or seven. In order to make sure that we drink this much water, it is well to have certain times for water drinking. A good practice is to drink a glass of water when you first get up and one when you go to bed. People used to suppose that water should not be drunk at meal time. Now drinking water during meals is advised, provided food is not rinsed down with water. Do not take a drink when there is food in your mouth!

How can constipation be avoided? A tired feeling and headache sometimes result from constipation. Pimples may form on the skin. When a person suffers continually from constipation the skin does not glow with health; it often has a sallow look.

If the wastes of the body are not removed as they should be,

Rouge — Whole milk is nature's cheek and lip reddener. It is the best lip stick and powder puff known. Taken internally it puts a natural paint on the spot where most girls desire it.

Skin lotion — Venus won the golden apple of beauty because she ate fruit each day from the orchards of Mt. Olympus.

Toilet water — Water of life — for best results drink seven glasses a day; an effective agent to make the eyes sparkle.

Vanishing cream — The most exquisite beautifier ever discovered. If your beauty specialist does not carry it, write your nearest cow.

Complexion cream — Essence of oatmeal from golden oats. Serve with silver refill spoon. Most effective when taken with Cow's vanishing cream.

Tonic — Fruits and vegetables (especially leafy ones) bring out the lines of the slim figure and put pep in every step.



FIGURE 139. FIRST AIDS TO BEAUTY

Redrawn by Emily E. Ruecker

Fresh air, sunshine, rest, and sleep abundantly used in connection with above products guarantee everlasting beauty. Manufactured exclusively by Mother Nature, World's Most Successful Dealer in Cosmetics.

(By permission of the Cleveland Girls' Council.)

poisons are formed in the intestines. These poisons are absorbed by the blood and are then carried to all parts of the body. In order to avoid poisoning the body in this way, there should be a bowel movement every day, as stated in the rules of the game (page 468) and the health chart (page 475). What can we do that will help to bring this about?

1. Drink plenty of water. Water helps to rinse out the intestines. Cold water early in the morning is often helpful.
2. Eat fruits and vegetables. The cellulose in these act as scrub brushes in the intestines.
3. Eat breads made of whole grains. For a type of constipation known as spastic, coarse foods, such as bran or cereals containing bran in coarse pieces, are not advised.
4. Take plenty of exercise. Persons who sit at their work are much more likely to be constipated than those who are doing active work.

What causes colds? Colds are contagious. When we come in contact with people having colds we may "catch cold." Colds may be caused by bacteria entering the nose and throat. If we are tired, are constipated, have eaten unwholesome food or too much food, or have had too little sleep, the bacteria in the nose and throat begin to grow and multiply rapidly. When one has a cold, the nose becomes red and "runs"; the eyes water; sometimes the throat is sore. This is because more blood than usual rushes to the nose, eyes, and throat for the purpose of stopping the growth of bacteria.

How can colds be prevented? Colds not only make us feel very miserable, but lead to serious disease. We should make an effort to follow habits of living that will result in our avoiding colds.

1. *Breathe plenty of fresh air.* Have you ever noticed that there are many more colds in winter than in summer? This is because there is such a difference between indoor and outdoor temperatures that the body is easily chilled. If the house is kept cool, 68° F., there is less danger of chilling the body. Persons sleeping with closed windows are more likely to catch cold than those who sleep with open windows.

2. *Have regular bowel movements.* When the wastes of the body are not carried away as they should be, one is more likely to take cold.

3. *Eat wholesome foods.* Sweets such as candy and pastry, if eaten at all, should be eaten sparingly and only at the close of meals.

4. *Drink plenty of water.* Water is needed, as has been explained, to prevent constipation.

5. *Bathe often.* Some people recommend cold baths as a preventive of colds. The skin stimulation resulting from cold baths helps to prevent chilling.

6. *Exercise, especially outdoors.* When we exercise, our circulation is improved. If our circulation is good, we are less likely to become chilled when we go outdoors or get in a draft.

7. *Wear clothing suitable for the weather.* It is possible to catch cold because of too thin clothing or too heavy clothing. Damp clothing, especially wet shoes and stockings, may cause a cold. Always change the shoes and stockings when they get wet. When the body is chilled, it is less able to protect itself from bacteria causing a cold.

Is cleanliness necessary for health? The need of bathing often has been mentioned. Cleaning teeth also has been discussed.

It is important to have *clean hands*. They should be washed before each meal to remove all sorts of bacteria which may be present. The hands should be washed also after you go to the toilet.

Clean finger nails are necessary for good appearance and for cleanliness. Bacteria may lodge in the dirt underneath the nails.

Dirty hair is most unattractive. To keep the scalp clean and healthy, *hair should be washed* at least twice a month.

Clean clothes, especially clean underwear, are essential to health. It is important to carry and *use* a clean handkerchief.

SUMMARY

Some essentials for health are:

1. Frequent bathing
2. Clean and sound teeth
3. Plenty of sleep

4. Fresh air both day and night ; sunshine daily whenever possible
5. Exercise, especially outdoors
6. Wholesome food including plenty of milk, vegetables, and fruits
7. From four to six glasses of water daily
8. A bowel movement every day

Constipation may usually be prevented by:

1. Drinking plenty of water
2. Eating fruits, vegetables, and whole grains
3. Taking exercise daily
4. Having a regular hour for moving the bowels

Colds may usually be prevented by:

1. Breathing fresh air
2. Having regular bowel movements
3. Eating wholesome foods ; avoiding much sweet food
4. Drinking water freely
5. Bathing often
6. Exercising, especially outdoors
7. Avoiding chilling the body by wearing clothing suitable for the weather ; changing wet shoes and stockings.

Cleanliness of bodies, hands, finger nails, hair, teeth, and clothes is necessary for health.

REVIEW QUESTIONS AND EXERCISES

Copy the following sentences, writing a number or word in place of each blank.

1. For health, at least — glasses of water should be drunk daily.
2. There are many tiny openings in the skin called —.
3. For health, the teeth should be kept — and —.
4. One should visit a dentist — a year.
5. Tooth-building foods as well as — foods should be eaten to keep the teeth in good condition.
6. To feel our best and think well — food is needed.
7. Bacteria entering the nose and throat may cause a —.
8. The hair should be washed at least — each month.
9. Use — but — bed clothes.
10. The hands should be washed often ; they should always be washed before — —.

HEALTH CHART

	PERFECT SCORE	WEEKS							
		1	2	3	4	5	6	7	8
1. Water — six or more glasses a day . . .	7								
2. Bath — at least two warm every week . .	7								
3. Walking or playing outdoors — one hour daily	7								
4. Brush teeth twice daily	7								
5. Clean fingernails — wash hands before each meal	7								
6. Eat a wholesome breakfast	7								
7. Drink milk but no tea or coffee	7								
8. Eat at least one vegetable, other than potatoes	7								
9. Eat no sweets between meals; unless at a party, only once a week	7								
10. Have a regular bowel movement	7								
11. Remember to stand, walk, and sit straight	7								
12. Wear low-heeled shoes	7								
13. Sleep at least nine hours, open window	7								
14. Keep hands clean; clothes neat, appropriate to season . . .	7								
15. Keep hair tidy; brush daily; shampoo at least twice a month .	7								
Total	105								

HOME WORK

Copy the chart¹ on page 475 in your notebook; check it each week.

Height and weight at beginning _____

Comparison with standard _____

Height and weight at close of eight weeks _____

Posture: Good? _____ Fair? _____ Bad? _____ Defect _____

Improvement shown at end of period _____

Total distance walked, preferably on hikes _____

Have your teeth been examined within the last six months? _____

Have defects been repaired?

Score $3\frac{1}{2}$ if only one bath has been taken during the week.

If the hair has been kept tidy but shampooed only once a month, score (for one month) 7 in two columns and $3\frac{1}{2}$ in two columns.

¹ Adapted from *The Health Trail for Girls of Greater Cleveland* by permission of the Cleveland Girls' Council.

CHAPTER XXXIV

CARING FOR THE SICK IN THE HOME

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Why does subdued talking outside a sick room often alarm a patient?
2. How should the stems of flowers be cut to prevent the flowers from wilting?
3. Is it harmful to leave flowers in a sick room at night?
4. From what side of the bottle should medicine be poured? Why?
5. Why does a sick person usually require less food than a well one?
6. Why is it especially necessary to serve food attractively for a sick person?
7. Why are fruit juices good foods to serve in the sick room?
8. Name some desserts that you think would be suitable for a sick person. Tell why you think they would be desirable.
9. How can foods be kept hot while carrying them to the sick room?
10. How should dishes used in feeding a person with a contagious disease be cared for?

How may one prove himself to be a worthy home member in time of sickness? A sick person in the home usually means extra care and work for the other members of the family. A daughter or son may often do much in helping to care for a sick member of the family. To do one's share in sickness or health is one of the obligations of family life. Let us learn what may be done in caring for the sick.

How can we help to make a sick person cheerful? A sick person usually feels very uncomfortable. He is also likely to feel depressed. Those going into a sick room should be careful to speak of cheerful things. They should also speak with cheery voices.

Subdued talking outside a sick room may disturb a sick person. If he is seriously ill, such talking may alarm him. He may imagine that the seriousness of his illness is being discussed. Do not do or say anything that will make the patient think



FIGURE 140. SHORT-STEMMED FLOWERS

This vase is suitable in shape for the bouquet of field daisies and garden asparagus because it is low. Short-stemmed flowers should be arranged in a low vase or bowl.

A transparent glass container is pleasing for many flowers, because it shows their stem.

To know that family and friends are expressing their sympathy and thoughtfulness is comforting.

Although fresh flowers may be cheering, wilted flowers often depress one. When a household has a sick member, it is helpful to have the daughter care for the flowers. Arrange cut flowers attractively in a vase or bowl. If possible, choose a holder that

something is being kept from him. Even though a person is not very ill it is well to say nothing to alarm him. It is thought that a brave, cheerful person has a better chance of getting well than a frightened, sad person.

How should flowers be cared for in a sick room? Flowers do much to cheer most sick persons. Looking at a lovely flower may help a sick person to forget his discomfort or suffering. Then, too, the fact that some one in the family has been thoughtful enough to pick flowers or that some friend has been kind enough to send them may cheer a patient.

To know that family and

is suitable for the flowers both in color and shape. Long- and short-stemmed flowers need different containers. (See Figures 140, 141, and 142.)

Keep fresh water in the bowl containing the flowers. They will remain fresh longer if the ends of their stems are cut daily. To do this hold the stems under running water or in a pan of water while clipping them. Discard wilted flowers. If there are plants in the sick room, keep them watered. Remove any wilted leaves or blossoms.

It was formerly thought that flowers should be removed from a sick room at night, because they exhaled carbon dioxide. Now scientists know that flowers do not exhale enough carbon dioxide to do any harm.¹ Sometimes a patient may grow tired of the odor of strongly scented flowers. Then it is well to take the flowers occasionally from the room.

How can we help to make a patient comfortable? *Glaring light* in a room may be disturbing; it may prevent a sick person



FIGURE 141. LONG-STEMMED FLOWERS IN A TALL VASE

Can you imagine how these peonies would look in this tall vase if the stems were shorter so that only the heads of the flowers extended above the top of the vase? The blossoms would be massed together so that their beauty would not show to good advantage. Only long-stemmed flowers look good in tall containers.

¹ See page 107 of *Chemistry* by Greer and Bennett, Allyn and Bacon.

from sleeping. Notice the light in the sick room. It may be that by adjusting the window shades you can make him much more comfortable.

The *temperature* of a sick room should be watched carefully. The *air* should be kept *fresh*. It is not always wise to have a



FIGURE 142. LONG-STEMMED FLOWERS IN A BOWL

Long-stemmed flowers may be placed in a bowl if the bowl is large enough.

A wire holder permits a more graceful arrangement than one of glass or pottery.

How should medicine be given? If the responsibility of giving a sick person medicine rests on you, be sure that you do this important thing well.

A definite time for giving medicine is usually stated on the label, or the doctor gives careful directions about the time. In any case, be prompt in giving the medicine.

window open; the draft may strike the patient directly. Sometimes a window may be opened (for a few minutes at least) in an adjoining hall or room. In such case, ask an older person or the doctor about ventilating the sick room. A gauze window screen, a folding screen, or a sheet hung over one or two chairs may be used to prevent drafts from open windows or doors.

Try to *keep the sick room tidy*. Do this as quietly as you can. If working in the room annoys the patient it may be better to do the least possible work rather than to disturb the patient.

It is important to give the right medicine. In order to make sure that no mistake is being made about the kind of medicine, *read the label twice* before you pour out the medicine.

Since it is so important to read the label, it should be kept clean. *Pour* the medicine from the *side of the bottle* opposite the label. If any medicine runs down the bottle, it will not stain the label.

Note how much medicine you are to give. If a teaspoon is to be given, be sure you have a clean teaspoon with which to measure the medicine. Do not guess at the measure.

If possible, after pouring medicine, keep the bottles out of the patient's sight. Medicine bottles are not very attractive to look at constantly.

Note to the Teacher: Making a bed for a sick person, changing bed linens when a patient is in bed, caring for the teeth and hair of a patient, and bathing a patient in bed can be taught best by demonstrations. Demonstrations may be given by a visiting nurse or by you yourself. For suggestions regarding these topics, see the Red Cross textbook, *Home Hygiene and Care of the Sick* by Jane Delano, P. Blakiston's Son & Co.

Why does food for invalids need special care? If you have ever been ill, you may know that foods do not taste the way they do when you are well. Very often sick persons do not care for the foods they like when well. Sometimes they do not want any food at all. Food is a very important factor in treating a sick person. Sometimes rest and very nourishing, easily digested foods are all that are needed to bring about recovery.

There are several things to think about in preparing food for a sick person.

1. Select the kind of food that a patient needs to nourish him.
2. Prepare it so that it will taste as good as it is possible to make it.
3. Serve it so that it looks attractive.

How should food be selected for a sick person? In very severe illness, a doctor may be as particular to prescribe food as

he is to prescribe medicine. Under such conditions, the doctor's orders should be followed carefully.

When the illness is not so serious, a member of the family sometimes selects food for a patient. If a sick person does not want any food, it is often a mistake to ask him what to cook for him. Think of the kind of food he should eat; also think of the food he especially likes. If he likes the food he should eat, the selection is easy. If he thinks he dislikes the food he should eat, try to prepare it in such a way that he will like it. Sometimes a food may be mixed or flavored with other food to give it a different taste.

What is a liquid diet? The dissolving of food is one step in digesting food. Food which is liquid before it is eaten is considered easy to digest. Sometimes a physician will merely direct that the sick person be given a *liquid diet*. It is well under such circumstances to know the nature of a liquid diet.

The foods of a liquid diet are usually given every few hours. A day's liquid diet usually furnishes only a few hundred calories. A liquid diet includes:

1. *Milk*. If a patient dislikes plain milk, buttermilk or malted milk may be given. Cocoa made with much milk is sometimes prepared for patients who do not like plain milk.

2. *Uncooked egg*. Often a raw egg is mixed with milk, fruit juice, or cocoa so as to make the egg taste better or to disguise its taste. These foods may also increase the food value. An *eggnog* may be made by mixing 1 beaten egg, $\frac{3}{4}$ cup milk, 2 teaspoons sugar, a speck of salt, and a few drops of vanilla or grains of nutmeg.

3. *Cream soups*. These are valuable in many cases because they always contain milk and usually strained vegetable.

4. *Cereal gruels*. These foods are about as thick as cream soups. Cereal gruels are cooked in the same way as breakfast cereals except that less cereal is used in making them.

Use oatmeal, corn meal, barley, rice, Graham or whole-wheat flour, or crushed Graham or oatmeal crackers — for preparing gruels. *Use 1 tablespoon of cereal with 1 cup of liquid*. Cook the mixture thoroughly. Strain it before serving. In case a breakfast cereal has been cooked for

the rest of the family, a gruel may be made by adding water to the cooked cereal, and then straining.

Season a gruel carefully. Not much seasoning should be used for a sick person, but some is necessary to make it taste good. For variety, whole spices are sometimes cooked with the cereal. The spice, of course, is removed when the gruel is strained.

5. Make *beef tea* as follows: Soak 1 pound of lean chopped beef in water for at least 1 hour. (Put the mixture in a cool place while it is soaking.) Cook the meat in the top of a double boiler. Stir constantly while cooking. Cook it only a short time. Strain through a coarse strainer. Season slightly; serve at once.

Beef juice is prepared by cutting meat into pieces and heating them slightly. Then the juice is pressed from the meat with a potato masher or a meat press. Usually no water is added to it.

6. *Fruit juices*. Usually a sick person does not care for sweet foods. Fruit juices, however, are generally acceptable because they contain acid along with sugar. Orange juice is an especially valuable sick-room food because it is rich in vitamin C and in mineral matter.

What is a soft diet? A soft or semisolid diet offers a greater variety than a liquid diet. The usual food for a soft diet furnishes about 2000 calories. A soft diet includes:

1. *Softened toast*. Toasted bread is softened with hot milk, hot water, or hot meat broth. The toast is usually buttered before the liquid is poured over it. It may also be cut into cubes so the patient can eat it conveniently. A few grains of salt added to the milk or water poured over toast make it taste better.

2. *Eggs*. Soft-cooked eggs and omelets (see page 96) are usually included in a soft diet.

3. *Thick cereal gruels or strained cereals*. These foods served with top milk or cream are usually more appetizing than the thinner gruels.

4. *Strained cooked vegetables*. Because spinach is such a valuable vegetable, it is often served to a sick person. For a soft diet, the spinach should be pressed through a strainer after it is cooked. It may be served with butter, seasoning, and a few drops of lemon juice, or it may be made into cream soup. (See page 247.)

5. *Desserts*. A variety of desserts may be used in a soft diet. Suitable desserts are custards (see page 316), blancmange (see page 314), plain gelatin dishes (see page 439), and frozen desserts containing no

solid foods. (See page 569.) None of the desserts prepared for a sick person should be very sweet.

A simple dessert may be made by adding a rennet tablet to milk. (You will remember that you experimented with rennet and milk when you were learning about cheese making. See page 254, Experiment 18.) The dessert is prepared as follows:

RENNET CUSTARD

$\frac{1}{4}$ rennet tablet	2 teaspoons sugar
1 teaspoon cold water	$\frac{1}{4}$ teaspoon vanilla
$\frac{1}{2}$ cup milk	

Quarter a rennet tablet. Add it to the cold water. Stir to dissolve the rennet.

Heat *slowly* until *lukewarm* (not hot) the milk, sugar, and vanilla in a double boiler, *stirring constantly*. (Test the temperature frequently by dropping the milk on your wrist. See page 500 and Figure 145, page 501. If the milk is overheated and then cooled to lukewarm temperature before adding the rennet, the custard will not be as firm as it should be.) *At once* pour the mixture into a sherbet glass or other serving dish. Do not move until firm — about 10 minutes.

After the milk clots, put it in a cold place to chill. Serve with plain or whipped cream.

If desired, a pinch of powdered cinnamon or nutmeg may be sprinkled on top of the rennet when it is ready to serve.

Cooked and strained *fruit sauces* such as apple sauce may be included in a soft diet.

What is a light diet? A light diet is somewhat like a wholesome normal diet. However, it must contain no food that is difficult to digest. No organ of the body should be overtaxed in digesting food when the patient is recovering from sickness.

Usually not so much food should be eaten by a person who is convalescing as by one who is well. The average sick person does not exercise actively and does not need so many calories as a well person.

In addition to those foods included in a liquid diet and a soft diet, a light diet includes:

1. *Easily digested meats.* Roast or broiled lean beef, chopped or scraped lean beef, chopped liver, chicken, mutton, lamb, or fish are suitable meats.

2. *Cooked vegetables.* Those vegetables especially rich in vitamins and mineral matter are desirable.

3. *Cooked fruits.* Baked fruits such as apples and bananas are good. Stewed prunes and pears also are desirable. It is well to use some easily digested uncooked fruit such as orange juice or sliced oranges or grapefruit.

How should foods be served to a sick person? It is especially necessary to make food not only taste good but look good to a sick person. For this reason, care should be taken in arranging the food on the serving dishes and in carrying them to the sick room.

For one who is too ill to come to the dining table, food must be arranged on a tray. The following may prove helpful in arranging a tray attractively. (See Figure 143.)

1. Put a clean napkin or doily on the tray.
2. Put the food in dainty dishes.
3. Serve small portions of food. A patient may eat two small servings of a food. A large serving is apt to disgust him so he will eat none of it.
4. Use deep dishes for holding liquid foods so that they do not spill when you carry them to the sick room.
5. Cover hot foods, using dishes with covers, or plates or saucers as covers. Make every effort to keep the food from cooling while it is being taken to the patient.
6. Provide one or more clean napkins. A warmed napkin or towel may be used to cover the dishes on the tray. If the patient is in bed, a large napkin may be needed to protect the bed clothes.
7. Garnish foods attractively. Think of different ways of arranging food. Place a flower or a bud vase containing a single flower on the tray. Never use a bud vase unless the tray can be placed on a bedside table.
8. If possible, have no medicine bottles or other sick-room accessories in sight when food is being eaten.

What special care should be taken in feeding a contagious-disease patient? The *linens* used in serving a patient having

a contagious disease should be boiled to destroy any disease bacteria which may be on them. If paper doilies and napkins are used, these should be burned immediately after they are used.

Bits of food left from the meal should be burned.



FIGURE 143. AN INVALID'S TRAY

The hot foods are covered to keep them warm. Cream of spinach soup is covered with a plate; buttered toast, with a napkin. The casserole contains soufflé; the pot, cocoa; the uncovered sherbet glass, sliced orange.

Keep dishes used by a patient having serious illness separate from the dishes used by others in the home. *Sterilize the dishes* from the sick room. To do this put them in a pan, cover with cold water. Heat the water until it boils. Let the water boil for at least ten minutes.

SUMMARY

Help to make a patient comfortable by:

1. Shading the light
2. Keeping the temperature of the room proper

3. Ventilating the room
4. Keeping the room neat

Points to observe in giving medicine are :

1. Give medicine at the proper time.
2. Be sure you are giving the right medicine.
3. Pour it from the bottle carefully.
4. Measure it accurately.

Food for the sick includes:

1. Liquid diet — milk, uncooked eggs, cream soups, cereal gruels, beef broth, beef tea, beef juice, fruit juices
2. Soft diet — softened toast, soft-cooked eggs, thick cereal gruels or strained cereals, easily digested desserts
3. Light diet — foods of liquid and soft diet, easily digested meats, cooked vegetables, cooked fruits

Foods for the sick should be:

1. Carefully selected
2. Properly cooked
3. Attractively served

Dishes and linens used in serving a patient having a *contagious disease* should be *sterilized*.

REVIEW QUESTIONS AND EXERCISES

Some of the following statements are true and some are false. Read each statement very carefully and decide whether it is true or false. On a piece of paper or in your notebook, list the numbers corresponding to the statements. After each number write the word True or the word False.

1. Flowers should always be taken from a sick room at night.
2. Give medicine promptly; measure it accurately.
3. Always keep medicine bottles in sight so the patient will be reminded that he must take medicine.
4. Pour medicine from the side of the bottle containing the label.
5. Apple pie is a suitable food for a sick person because it contains fruit.
6. In making rennet custard, heat the milk until it is as hot as it will get when heated over hot water.
7. Custards are especially good sick-room desserts.
8. Foods that are wholesome for well persons are usually suitable for the sick.

9. Milk is an excellent sick-room food.
10. Cream soups are included in a liquid diet.
11. Mashed potatoes are suitable foods for patients requiring liquid diet.
12. Cereal gruels should be about as thick as cream soups.
13. Dishes used for a person having a contagious disease are safe to use if washed in warm water.
14. A person usually requires more food when sick than when well.

HOME WORK

1. Write a day's menu for a patient requiring a liquid diet.
2. Write a day's menu for a patient requiring a soft diet.
3. Write a day's menu for a patient requiring a light diet.
4. If there is a sick person in your home, report
 - a.* What you did to make him more comfortable
 - b.* What you did to give him pleasure
 - c.* What you did to keep him clean
 - d.* What food you prepared for him.

CHAPTER XXXV

KEEPING THE BABY AND HIS LITTLE BROTHERS AND SISTERS WELL AND HAPPY

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Is it wise to bounce or "boo at" a little baby? Why?
2. Why do babies need sunshine?
3. Can a baby get the benefit of sunshine by being placed in a room near a window containing ordinary glass? Why?
4. Why is cod-liver oil sometimes called *bottled sunshine*?
5. How often should a baby be given a bath?
6. Why is it not advisable to tell little children ghost stories?
7. Why should babies not suck their thumbs? How can they be broken of this habit?

What makes a baby happy? Is there a little baby in your home? If so, it may be you help to take care of him or feed him. Even though you may not take much care of baby, you doubtless want to help to make him happy.

Making a little baby happy is largely keeping him well. When a baby is well and kindly treated, he is happy. Until a baby is at least a year old, he depends upon those who care for him for everything. It is said that *the first year is the most important time in life to lay a good foundation for health*. Those who take care of a baby have a great responsibility in keeping him well.

How should a baby be lifted and carried? When a baby is very young, his little bones are not stiff enough for him to walk or to sit up alone. Because of this, he should be lifted and handled very gently and carefully. In fact, a baby should not be handled any more than is necessary. It is likely to make him

nervous. If he is allowed to lie undisturbed, he will kick and wave his little arms. This is as much exercise as he should have. It is not well to rock a baby or to wheel him in a baby carriage for amusement.

As a usual thing, *a girl should not handle a baby before she is 14 or 15 years old.*¹ There are many things, however, a younger girl can do in helping an older person to take care of a baby.

In *holding* a baby, support his neck and back. The young baby is not strong enough to hold up his head. His back may be strained or injured if not supported. In *lifting* a baby, support his head and shoulders with your left hand and his body with your right hand. In this way his neck and back are protected. In *carrying* a little baby, let his body rest against yours, with his head lying on your left shoulder.

Is a baby harmed by careless caressing? Babies are so lovable that older people often like to fondle them. It is possible to harm a baby by caressing him too much or carelessly. Never kiss a baby on his mouth. Kiss his cheek or neck. From what you learned about disease bacteria in the mouth, you surely understand why kissing a baby on his lips may do him harm.

Sometimes a baby laughs when he is bounced or "booed at." After a time he is likely to cry because he is tired. Scaring or startling a baby makes him nervous.

What kind of toys should babies have? Have you noticed how often babies put things in their mouths? They also put things in their noses and ears. In buying or giving a toy to a baby, think whether the baby would be harmed by putting the toy in his mouth. Toys that have sharp points or edges, painted toys, jointed toys from which pieces small enough to swallow or to put in the nose or ears may break and wooly toys which catch

¹ *Note to the Teacher:* The correct way of lifting and holding a baby may be demonstrated and practiced by using a large doll.

dirt and dust are not suitable for a baby. A toy should be washable, and should be washed frequently. (See Figure 144.)

Why should a baby not suck his thumb? Because babies like to put things in their mouths, they sometimes suck their thumbs. They should not be allowed to do this because (1) the mouth may become deformed, (2) disease bacteria may get into the mouth, and (3) swallowing air may cause discomfort in the stomach. Padded cuffs placed on the elbows prevent a child from sucking his thumb.

A *pacifier* is sometimes given to a baby because it may stop his crying. It may produce the same harmful results as sucking the thumb.

How long should a baby sleep? A baby grows rapidly. Since sleeping time is growing time, he needs much sleep. A baby only a few weeks old sleeps from *20 to 22 hours daily*. A baby less than six months old needs to sleep from *16 to 18 hours each day*. He should sleep more hours than he is awake. From six months to a year, a baby should sleep from *14 to 16 hours a day*. When a baby is three months old, he should sleep without feeding from 10 P.M. to 6 A.M. Of course, this does not mean that



Girl Scouts of America

FIGURE 144. AMUSING THE BABY

Notice how carefully the girl scout holds the baby as she plays with him. Also notice the toys. With such careful treatment and harmless toys, the baby's play will prove beneficial.

a baby should be put to bed at 10 o'clock in the evening. After he is six months old, 11 to 12 hours of the 14 to 16 hours should be at night. Babies should have a nap in the morning and afternoon.

The American Child Health Association has described in verse the sleeping of a young baby.

So lately he's come from the Country of Dreams
That he needs to revisit it often it seems;
So morning and afternoon, every day,
Baby sails over Dream Seas a little way.
Then at six every evening we tuck him in tight,
And he slumbers through Dreamland the whole of the night.

Where should a baby sleep? The *room* in which the baby sleeps should be quiet and well ventilated. The light in the room should not be too strong. A baby should sleep alone. If he cannot have a room of his own, he should have a separate bed. A clean clothes basket or a box makes a good bed for a little baby.

A mattress for the little bed may be stuffed with hair or cotton batting. Feathers should not be used. It is better for a baby to sleep without a pillow. On top of the mattress, put rubber sheeting or oil cloth. A small sheet or a pillow case should be placed next, then an upper sheet, blankets, and spread. The bed covering should be placed carefully. There should be no wrinkles in it. A baby's bed should be kept clean and aired each day.

How may a baby be given fresh air? Babies need plenty of fresh air to keep them well. After a baby is two weeks old, he should be outdoors every pleasant day except when he is sick. Being outdoors does not mean going riding. After he is a month old, he should have a nap outdoors during suitable weather.

For the outdoor nap, a carriage is much better than a go-cart. The baby can be more comfortable in a carriage and is protected from drafts and cold winds.

The baby's eyes should be shaded from the sun when he is napping outdoors. Even in cloudy weather, his eyes should be protected from the glare of the sky. In hot weather, the baby should not be outdoors during the middle of the day when the sun is hot.

In winter the baby carriage or bed should be put outdoors in a *sheltered place*. The baby's head should be protected with a hood. A hood attached to a wrap is a better protection than a separate one. The pillows and blankets used in the carriage should be warmed before the baby is put into it. It is also advisable to put a hot-water bottle (well covered) in the foot of the carriage.

When the weather is stormy, the baby should have fresh air, but he should not be taken outdoors. He may be placed in a room with the windows open. The baby should, of course, have on his outer wraps just the same as when he goes outdoors.

Why should a baby be put in the sunshine? Have you ever noticed how pale and unhealthy a plant becomes when it is put in a dark place? Plants must have sunlight to make them grow and be healthy. Babies, children, and grownups also need sunshine. A baby needs sunshine so that his bones will be well formed and strong. Sunshine protects baby from a disease of the bones called *rickets*. (See Figure 138, page 469.)

We know that when we sit beside a window on which the sun is shining, we can feel the heat of the sun. Heat rays from sunlight pass through window glass. But there is a certain kind of rays coming from sunlight which does not pass through ordinary glass or cloth. *These rays, called ultra-violet rays, are necessary to keep the baby healthy.* Hence, *the baby should be exposed to sunlight outdoors; he should wear no clothes* when the weather is warm. His head and eyes should be protected, however.

Ultra-violet rays do not pass through ordinary glass, but some of them go through special kinds of glass now being manufactured. If this glass is put in a window facing the south or

southwest, and the baby is placed near the window when the sun is shining, he will get the effect of some of the ultra-violet rays. This glass can be put in a window in place of ordinary glass. It costs about \$1.25 a square foot.

Why is cod-liver oil called bottled sunshine? Many babies are given cod-liver oil during the months when there is a limited amount of sunshine. They are given this oil because it affects the body somewhat as do ultra-violet rays. Both ultra-violet rays and cod-liver oil make it possible for the body to make use of the calcium which it gets in its food. Calcium is very necessary to make the bones hard and to develop the teeth and other parts of the body. Even though a baby were given plenty of milk to drink, he might not have power to make use of the calcium contained in the milk. In such a case, the baby would develop rickets. *Sunshine, cod-liver oil, and proper food will prevent rickets.*

Because cod-liver oil affects the body in about the same way as the ultra-violet rays of the sun, it is often called *bottled sunshine*. Cod-liver oil has this wonderful effect on the body because it is rich in vitamins. This oil is no longer considered a medicine. It is a food.

How and when should a baby be given water to drink? A baby needs plenty of water to drink to keep him well. When the weather is hot or damp, he feels the effects of heat and dampness more than older people do. Drinking water helps to make him more comfortable.

Give the baby boiled water. After it is boiled, the water should be poured into a scalded bottle or jar. The container should be corked or covered. When given to the baby, the water should be cool, but not cold.

Let the baby drink the boiled and cooled water from a *cup* or *feeding bottle*. The very young baby can drink only about a *tablespoonful* at a time. Gradually the amount can be increased. It is possible to give a baby too much milk and other

foods but not too much water. *About halfway between feeding periods and just before his bath* are the times to give a baby water to drink.

When should a baby be bathed? A baby needs a bath every day. Either a sponge bath or a tub bath may be given. For a very young baby, a sponge bath is given. After a baby is two weeks old, he may be bathed in the tub. A bath is usually given in the morning or at night. It should always be given *before* and *not after feeding*. In warm weather a baby needs several sponge baths each day, besides a tub bath.

The room in which the baby is bathed should be warm. The temperature should be between 72° and 76° F. It is well to have a thermometer in the room so that the temperature can be accurately measured. One's hands should be washed before bathing the baby.

All articles needed for bathing the baby and the clothing needed after the bath should be arranged before starting.

Note to the Teacher: Giving a baby both a sponge bath and a tub bath can be taught best by a demonstration given either by you or by a visiting nurse. For directions for bathing a baby, refer to material issued by the board of health of your state or to *Manual of Infant Hygiene*, State Board of Health, Madison, Wisconsin.

What is your responsibility to younger brothers and sisters? If you have a baby brother or sister, you have observed, no doubt, how quickly he learns to imitate those around them. A baby has no good or bad habits when he is born. The habits he develops are determined by those who come in contact with him. It is possible to train a baby to have good habits.

Older sisters and brothers need to remember that babies and younger brothers and sisters will often imitate what they do. They have a great responsibility, then, in doing nothing which would lead the younger brother or sister to develop a bad habit.

How should you amuse little children? Little children love stories. There are many wholesome stories for children that

will both amuse them and teach them about people and things. But there are exciting stories which are not suitable. A ghost story will make some children nervous and wakeful at night.

The trust a little child places in his parents and older brothers and sisters is one of the lovely things of life. Act so that your little brother or sister will always trust you. Do not deceive him in any way. Be truthful and sincere to him. Do not in any way take advantage of him because he is smaller and younger than you.

Avoid playing roughly with little children. Some children appear to enjoy rough games which may hurt or excite them. Because a child has not had enough experience to know what is good for him, he often wants that which would prove harmful. Use your judgment about the kind of games you play with him and the way you play them.

SUMMARY

Babies need much sleep.

Few weeks old — 20 to 22 hours daily

Less than six months old — 16 to 18 hours daily

Six months to a year old — 14 to 16 hours daily

Babies should *sleep alone*.

Fresh air is necessary for a baby's health.

To get fresh air each day, let the baby have a *nap* outdoors when the weather is good, and in a room with open windows when it is stormy.

Sunshine is needed to make a baby grow and to prevent *rickets*.

Expose the baby to sunshine outdoors, without clothing, when the weather is warm and pleasant; indoors, when it is stormy, behind windows which allow some ultra-violet rays to enter.

In case the special window cannot be provided or there is very little sunshine, consult a physician about giving *cod-liver oil*.

Give a baby *boiled* water to drink.

Bathe a baby *daily*.

Avoid amusing a baby by bouncing or caressing him carelessly.

Avoid amusing a young child by telling him exciting stories or by playing with him roughly.

REVIEW QUESTIONS AND EXERCISES

1. Give at least one good reason for each of the following :
 - a.* Why a baby needs sleep
 - b.* Why he needs fresh air
 - c.* Why he needs sunshine
 - d.* Why he needs boiled water to drink
 - e.* Why he needs a bath each day
2. Think of at least one story that will be suitable to tell a younger brother or sister. Tell why you think the story would be suitable.
3. Think of at least one game that would be suitable to play with a younger brother or sister.
4. Name some toys that would be suitable for a baby. Tell why you think they would be suitable.
5. Name some toys that would be unsuitable for a baby. Tell why you think they would be unsuitable.

HOME WORK

If you have a baby in your home or a young brother or sister, report to your teacher what you have done during the week :

1. To help to keep the child well
2. To help to make him happy.

CHAPTER XXXVI

FEEDING THE BABY AND HIS LITTLE BROTHERS AND SISTERS

Can you answer these questions? If not, look for the answers as you study this chapter.

1. What is *certified* milk?
2. Are all the bacteria in milk killed by *pasteurizing*?
3. What is *modified* milk?
4. Why should orange juice be fed to a baby?
5. What cheaper food may be substituted for orange juice?
6. Why is it advisable to give a baby who is seven months old a piece of toast or other hard bread each day?
7. What harm results from expressing dislike for a wholesome food in the presence of a young child?

What is the best food for a young baby? In order to find out which is the better food for babies — a baby's own mother's milk or cow's milk — the babies of 79 families were observed. Some of these babies were fed on their mother's milk and some on cow's milk. At the end of eleven years, all the children who had been fed on their mothers' milk were alive. More than half of the children who had been fed on cow's milk were dead.¹ It has been shown in many other cases that the chances for a baby to live and to be healthy are very much greater when the baby is fed on his mother's milk rather than on cow's milk. It is a great pity when a young baby cannot have his mother's milk as his main food.

Dr. Mary Swartz Rose, an authority on diet, says: "One year of good feeding at the beginning of life is more important

¹ See pages 110 and 132 of *Feeding the Family*, revised edition, by Mary Swartz Rose, the Macmillan Company.

than ten after forty." The best feeding at the beginning of life consists in giving a baby his mother's milk along with a few other foods which will be described later.

What is certified milk? pasteurized milk? Sometimes a baby cannot have his mother's milk because of her poor health. The next best food is cow's milk. Some dealers' milk has the bottle or cap marked *certified milk*. If possible, certified milk should be used for feeding baby because it is *clean* milk. By clean milk is meant milk comparatively free from bacteria. (One of the reasons why a mother's milk is better for baby than cow's milk is that the former is free from bacteria and dirt.)

In order to keep cow's milk free from bacteria, the milk must be taken carefully from healthy cows, put into clean bottles, and cooled immediately. Such milk has a guarantee that it has been produced under the most sanitary conditions and is called *certified milk*.

If certified milk cannot be used, buy *bottled milk*. If possible, investigate the dairy from which the milk comes. The barns and cows should be clean. The milkers should have clean hands and clean clothes. The milk should be put in scalded bottles.

The caps of some milk bottles are labeled *pasteurized*. This means that the milk has been heated to about 145° F. and kept at that temperature for 30 minutes. Heating milk in this way does not kill all the germs in milk but it destroys disease bacteria. After pasteurizing, the milk is quickly cooled.

What is modified milk? Cow's milk is not like human milk. When cow's milk is fed to a baby, it needs to be changed so as to make it more easily digested. *Cow's milk changed so as to meet the needs of a baby is called modified milk.*

Some babies need to have cow's milk changed in one way and some in another. A doctor who is familiar with the needs of a little baby is able to write a prescription or formula for modified milk. Milk is modified for many babies by adding to whole cow's milk (1) sugar and (2) boiled water or cereal water.

All utensils used in modifying milk should be clean, *i.e.*, free from germs.

Note to the Teacher: Modifying milk and scalding the utensils needed can be taught best by demonstration. Directions for these may be obtained from the board of health of your state or from the *Manual of Infant Hygiene*, State Board of Health, Madison, Wisconsin.

How is a bottle of modified milk prepared for feeding? There are at least three steps in getting a bottle of modified milk ready for use.

1. The cotton stopper must be removed.
2. The sterilized nipple must be placed on the mouth of the bottle.
3. The milk mixture must be heated and tested for proper temperature.

To do this one should first clean the *nails* and *wash* (preferably *scrub*) the *hands*.

In *removing* the *cotton stopper* avoid touching the rim of the mouth of the bottle. See that no bits of cotton are left in the mouth of the bottle. In *placing* the *nipple* on the *bottle*, hold the neck of the bottle with the left hand. Grasp the nipple at its extreme edge with the thumb and first finger of the right hand. *Do not touch the part of the nipple that is put in baby's mouth.* Put the nipple over the rim of the bottle.

To warm the milk to lukewarm temperature, first shake the bottle so as to mix the cream with the other ingredients. Place the bottle in a pitcher or tea kettle of hot (not boiling) water. *Test the temperature* of the milk by shaking a few drops on the inside of the wrist. (See Figure 145.) If the milk feels neither hot nor cold, it is lukewarm.

Never put the nipple in your own mouth to taste the milk. If you want to taste the milk, shake some milk into a teaspoon; taste from the teaspoon. Prepare as many bottles as needed for a day's feeding.

How should the empty feeding bottle and the nipple be cared for? If any milk is left in the bottle, pour it out. Do not use it again.

Rinse out the bottle with cold water until it looks clean. Put a pinch of baking soda in the bottle. Fill the bottle with water. Set it aside to be scrubbed and sterilized the next day.

With clear water, rinse the nipple both inside and outside. In a clean jar or tumbler put a pinch of soda. Add water. Put the nipple in the soda water.

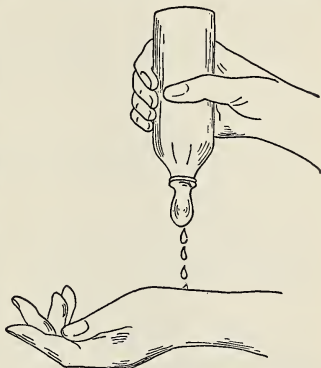
When should the baby be fed? *Feed the baby by the clock.* It is so important that babies be fed regularly that, if a baby is asleep when it comes time to feed him, doctors and nurses advise waking him.

The physician will give directions about the time of feeding the baby.

What foods other than milk should be given a baby? Both babies that are fed on mother's milk and those that are fed on

modified cow's milk should have certain foods other than milk. Ask the physician what foods to give, when to give them, and how much to give. These foods other than milk are chiefly fruits, vegetables, cereals, and cod-liver oil. Of course, the young baby must not be given solid foods. The juice of fruit, cooked and strained vegetable pulp, and cooked and strained cereals are suitable for him.

Orange or Tomato Juice. — These supply vitamins and mineral matter. *At three weeks of age, give the baby 1 teaspoon of orange juice*



Wisconsin Bureau of Child Welfare

FIGURE 145. TESTING THE TEMPERATURE OF MILK

This is an *easy* and *clean* way of testing the temperature of milk. Why should you not touch the part of the nipple that is put in the baby's mouth with your fingers or lips?

diluted with water or 2 teaspoons tomato juice undiluted each day. The juice of either ripe tomatoes grown outdoors or canned tomatoes may be given. As the baby grows, these amounts should be increased. By the end of the first year, a baby should have 2 ounces of orange juice — the juice of 1 orange — each day. The fruit juice should be given between a half-hour and an hour before feeding.

Cereals. — These are needed to supply energy or heat and mineral matter. *At five to six months of age,* give a baby 1 teaspoon of well-cooked and strained cereal each day. A variety of cereals such as Wheaten, rolled oats, Cream of Wheat, Cream of Rye, farina, and Pettijohn is advised. Cook the cereal in a double boiler 3 hours.

A little scalded or modified milk may be mixed with the cereal, but no sugar or cream. The cereal should be fed from a spoon just before a feeding of milk.

The amount should be increased. At ten months of age, 1 to 2 rounded tablespoons may be given daily. Also at ten to twelve months of age, the cereal may be unstrained.

Vegetables. — These are needed to supply vitamins and mineral matter. *At six months of age,* give 1 teaspoon of cooked and strained vegetable pulp. Use leafy vegetables such as spinach, lettuce, swiss chard, beet tops, and carrots. When the baby is older, beets, string beans, peas, and asparagus may be given.

Cook the vegetable in very little water until tender. Press through a strainer. Increase the amount as the baby grows. At one year of age, the baby should be having 2 tablespoons each day. Feed the vegetable pulp from a clean spoon just before a milk feeding.

Cod-Liver Oil. — Give amounts as the physician directs.

Cooked Prunes. — These are valuable because of laxative effect. Cook until tender. Use juice and strained pulp. Add no sugar.

Toast or Unsweetened Zwieback. — This hard food is needed to teach a baby to chew and thus help to develop jaws, face, and head. *At seven months of age,* give the baby a piece of hard bread once or twice a day before or after a milk feeding.

Egg Yolk. — This supplies proteins, vitamins, and mineral matter. Egg yolk may help to protect a baby against rickets. *At twelve months of age,* egg yolk is prescribed by some authorities. From $\frac{1}{2}$ to 1 egg yolk may be given daily. All children cannot take egg at this age. Start to give it cautiously either in orange juice or mixed with soft bread crumbs. Half a teaspoon, or even less, of egg yolk may be given at first and the amount gradually increased.

What foods should a pre-school child eat? As a child grows, a greater variety of food and a greater quantity need to be given. However, the number of meals decreases as the child becomes older.

The following menus ¹ are suggested for perfectly well children. If a child is not well, a doctor should be consulted.

12 TO 15 MONTHS

6 A.M.: 8 to 12 oz. milk.²

9 A.M.: 1 to 2 oz. of orange juice or strained canned tomato juice.

10 A.M.: ³ 8 to 10 oz. of milk ²; 1 or 2 pieces of Zwieback or 1 or 2 tablespoonfuls of well-cooked cereal (oatmeal, farina, rice).

2 P.M.: Beef broth with farina enough to make it thick like apple sauce, 8 oz.; 1 to 2 tablespoonfuls of apple sauce or pulp of stewed prunes; 1 to 2 tablespoonfuls of well-cooked and mashed vegetables, seasoned sparingly with salt (spinach, carrots, potatoes, cauliflower, and beets). One piece of dry bread. Boiled water to drink.

5 P.M.: 1 to 2 oz. of orange juice or strained canned tomato juice.

6 P.M.: 8 to 10 oz. of milk ² with 1 or 2 pieces of Zwieback or 1 or 2 tablespoonfuls of cereal, tapioca, or gelatin (like *Jell-o*).

15 MONTHS TO 2 YEARS

6 A.M.: 10 to 12 oz. of milk ² to drink.

9 A.M.: 1 to 2 ounces of orange juice or strained canned tomato juice.

10 A.M.: 8 to 10 oz. of milk ² with 1 or 2 pieces of Zwieback or 2 to 4 Graham crackers, or 2 or 3 tablespoonfuls of well-cooked cereal (oatmeal, farina, rice). Small piece of dry bread.

2 P.M.: Same as under 12 to 15 months, except that the quantities are increased; that is, vegetables, 1 to 4 tablespoonfuls; apple sauce, 2 to 6 tablespoonfuls. At 18 months, soft-boiled or poached eggs may be used for certain children 3 to 6 times a week.

6 P.M.: 8 to 10 oz. of milk ² to drink; 2 or 3 pieces of Zwieback or 2 to 4 tablespoonfuls of well-cooked cereal, tapioca, or gelatin (like *Jell-o*).

¹ Courtesy of the Babies and Children's Dispensary of the University Hospitals of Cleveland.

² Lactic-acid milk or S. M. A. (synthetic milk adapted) may be used instead of plain milk. No cod-liver oil is necessary when S. M. A. is used.

³ It is advisable to give before or after this meal 1 teaspoonful of cod-liver oil, from November 1 to May 1.

2 YEARS

6:30-7:30 A.M.:¹ 8 to 12 oz. of milk² to drink; 2 to 6 tablespoonfuls of well-cooked cereal (oatmeal, farina, rice), with 2 to 4 oz. of milk.

9-10 A.M.: Juice of 1 orange or 2 oz. of canned tomato juice; 1 to 3 pieces of dry bread.

12 Noon: Same as the 2 P.M. meal under 12 to 15 months, except that the quantities are increased; that is, vegetables, 4 to 6 tablespoonfuls (peas, squash, and asparagus tips may be added to the vegetables mentioned above); apple sauce, 3 to 4 tablespoonfuls, or a scraped raw apple; and either a soft-boiled or poached egg or some meat is added. It is best to give eggs and meat on alternate days. Liver, sweet-breads, beefsteak, roast beef, chicken, and mutton chops are the best. Well-cooked soup meat may also be given. All meats should be cut very finely or be made into a paste before giving them to the baby. By no means fry any meat for the baby. Begin with a tablespoonful of finely cut meat and increase to a small sized meat ball or small chop. Boiled water to drink or 4 to 8 oz. of milk,² if the child is not satisfied and is not gaining adequately in weight.

5-6 P.M.: 8 to 12 oz. of milk² to drink; 3 or 4 pieces of Zwieback, or 3 or 4 tablespoonfuls of well-cooked cereal, tapioca, or 2 or 3 tablespoonfuls of custard pudding, rennet custard, gelatin, or a baked banana.

3 TO 4 YEARS

7:30 A.M.: The juice of 1 sweet orange, pulp of 6 stewed prunes, baked banana, or apple sauce; a well-cooked cereal — Pettijohn, oatmeal, cracked wheat, farina, or rice (one-half teaspoonful of sugar) with milk, a coddled egg with dry bread or toast and a glass of warm milk.²

12-1 P.M.: Same as 12 noon meal at 2 years, except that the quantities may be increased and the variety enlarged as follows: Vegetables: asparagus, string beans, onions. Meat: boiled fish, veal stew. Milk: 1 glass.²

¹ It is advisable to give before or after this meal one teaspoonful of cod-liver oil, from November 1 to May 1.

² Lactic-acid milk or S. M. A. may be used instead of plain milk. No cod-liver oil is necessary when S. M. A. is used. If the S. M. A. is given in the concentrated liquid or double strength powder form, it may be used in half the quantity suggested above.

5-6 P.M.: 8 to 12 oz. of milk¹ to drink; 3 or 4 pieces of Zwieback, or 3 or 4 tablespoonfuls of well-cooked cereal, tapioca, and 2 or 3 tablespoonfuls of custard pudding, rennet custard, gelatin, stewed fruits, apple sauce, or a baked or ripe banana.

4 TO 6 YEARS

Three Meals a Day — 7:30 — 12:30 — 5:30

Milk. — All milk or milk mixtures, except sterilized foods like S. M. A., should be pasteurized or boiled, as it is impossible always to be sure that raw milk is free from bacteria that cause disease. In the home, boiling is to be preferred to pasteurizing.

Cereal. — Must be cooked thoroughly. Oatmeal should be given several times a week on account of its action on the bowels. It is a good plan to alternate it with Cream of Wheat or rice.

Bread. — Dried or slightly toasted. Whole-wheat, rye, or Graham bread is the best. Zwieback, Graham, or soda crackers may be given.

Soups. — Beef broth with vermicelli, beef tea, chicken broth with rice, milk soup, cream soup, vegetable soup (vegetables mashed), macaroni or spaghetti in milk.

Meats. — Liver, sweet-breads, brains, kidneys, roast beef (rare), chicken, mutton chops, lamb chops, veal stew, soup meat, crisp bacon, boiled fish, broiled fish.

Eggs. — Eggs, soft-boiled, poached, or scrambled at breakfast or the noonday meal.

Vegetables. — Potatoes, carrots, spinach, beets, asparagus tips, cauliflower, peas, string beans, squash, stewed celery, purée of vegetables, and Bermuda onions stewed soft in milk. All vegetables should be thoroughly cooked and the vegetable water should be used.

Desserts. — Apple sauce, baked apple, cup custard, junket, orange juice, baked or ripe raw banana, stewed prunes, rice pudding, tapioca, **Jell-o**. No food between meals. Boiled water several times a day.

Antiscorbutic. — Orange juice and tomato juice, 1 to 2 oz. twice daily, are the best and most dependable.

Antirachitic. — Cod-liver oil in doses of 1 teaspoonful once daily before breakfast or S. M. A. in daily amounts of $\frac{1}{2}$ to 1 pint of the con-

¹Lactic-acid milk or S. M. A. may be used instead of plain milk. No cod-liver oil is necessary when S. M. A. is used. If the S. M. A. is given in the concentrated liquid or double strength powder form, it may be used in half the quantity suggested above.

centrated liquid or double strength when made up from S. M. A. in powder form. If only $\frac{1}{2}$ pint of concentrated liquid S. M. A. is used, then 1 glass of plain boiled or pasteurized milk should be added to the diet.

FORBIDDEN FOODS FOR CHILDREN UNDER SIX YEARS OF AGE

Meats. — Corned beef, dried beef, duck, game, goose, ham, pork, sausage, salt fish, fried fish, dressings from roasted meats.

Vegetables. — Fried, of all varieties; green corn, cucumbers, fried egg plant, fried onions.

Bread and cake. — Griddle cakes, hot bread, rolls, sweet cakes; also bread or cake with dried fruits or sweet frostings.

Desserts. — Ice cream, pastry, pie, salad, tarts, nuts, candied fruits, candy — except 1 to 2 small squares of good nut-free milk chocolate, especially when given as a reward.

Drinks. — Coffee, tea, beer, cider, wine, whisky.

Cereals. — Do not give any young child the "dry" or ready-to-serve cereals.

Butter. — Unless butter is made from certified milk or from an adequately pasteurized cream it represents a dangerous source of tuberculosis. Therefore, unless one is certain of the quality, it is better to postpone its use until the child goes to school. Homemade jams and jellies may be used in place of butter, if spread on bread in a thin layer. The child will get all of the fat-soluble vitamin A it needs from the milk it drinks.

What should a school child eat? The diet of a school child should consist of:

A quart of milk a day

Plenty of fruits and vegetables including orange or tomato

Eggs

A *small amount* of meat or fish or cheese daily

Well-cooked cereals

Whole-wheat or rye bread and butter

Wholesome desserts

The directions given in this text for selecting and preparing these foods apply to the young school child as well as older children and grown-ups.

Do you express your dislikes for foods? An older brother's or sister's remark, that he "hates spinach," may influence a younger brother or sister to dislike it. On the other hand, saying that carrots taste good or look pretty may make a young child want to eat this valuable vegetable. If you are so unfortunate as to dislike a wholesome food, do not speak of it before younger brothers and sisters.

How can young children be taught to eat wholesome foods? A person generally likes the kind of food he is used to eating. If a baby is given vegetables from the time he is six months old, he will usually like vegetables. There will be no difficulty in getting him to continue to eat them when he grows older.

Some children need to be taught to eat certain wholesome foods such as vegetables when such foods were not given them in babyhood. Most children want "to grow big." Showing a child pictures of animals that have grown because of wholesome food or failed to grow because of the lack of it often helps children to learn to eat what they should. (See the illustrations on pages 36, 68, and 222.)

Giving children *very small* portions of a *new* food is a good rule. A food prejudice may often be overcome by taking a teaspoon or less of the disliked food *each time it is served*.

There are some children who do not care for candy because they do not know how it tastes. The members of the family, realizing that candy is not good for a young child, have been careful not to give it to him. Never give a child a taste of anything which he should not eat.

When a great deal is said at the table about what a little child eats, attention is called to that child. He becomes the center of attention and likes the notice he is receiving. In such a case a child may refuse to eat what he should because by so doing he becomes the center of attention. Set the proper food before a child and take it as a matter of course that he will eat it.

SUMMARY

Certified milk is milk with a guarantee that it has been obtained from healthy cows under sanitary conditions.

Pasteurized milk is milk that has been heated to a temperature of about 145° F., kept at that temperature for 30 minutes, then quickly cooled.

Modified milk is milk changed so as to meet the needs of a baby.

Sterilizing is the process of freeing a substance from bacteria. Utensils and ingredients used in modifying milk are sterilized by boiling.

Mother's milk is better for a child because it

1. Makes the baby more healthy.
2. Is free from bacteria and dirt.

If *cow's milk* is used for baby feeding, it should be *modified* according to the needs of each baby.

Foods other than milk needed by babies are:

Orange or tomato juice to supply vitamins and mineral matter

Cereal to supply energy or heat and mineral matter

Cooked and strained vegetables to supply vitamins and mineral matter

Cod-liver oil to prevent rickets

Cooked and strained prunes for laxative effect

Toast or other hard unsweetened bread to help develop jaws, face, and head

Egg yolk to supply proteins, vitamins, and mineral matter and to prevent rickets

As the baby matures more solid foods are added.

REVIEW QUESTIONS AND EXERCISES

I. Why should a young baby not be given :

1. Plain cow's milk
2. Ready-to-eat cereals
3. Candy
4. Unboiled water
5. Modified milk prepared from uncertified milk without being heated

II. *Each of the following statements is completed in more than one way, only one of which is correct. Read each statement carefully and choose the*

correct word or phrase to complete it. Then copy the statement, including only the correct word or phrase.

1. Milk is pasteurized by being heated to (a) 212° F. (b) 145° F. (c) 185° F.

2. Water given to a baby to drink should be (a) boiled (b) iced (c) freshly drawn from the faucet.

3. Orange or tomato juice should be given to a baby (a) just before the milk feeding (b) immediately after the milk feeding (c) between milk feedings.

4. Fruit juices and cooked vegetable pulp should be given only to babies (a) fed on modified cow's milk (b) fed on mother's milk (c) fed either on modified cow's milk or on mother's milk.

5. Some ultra-violet rays of the sun will pass through (a) special glass (b) ordinary window glass (c) clothing.

HOME WORK

1. If there is a baby in your home or you have small brothers or sisters, report anything you have done in preparing food or planning menus for them.

2. The food of a child six years old should supply 1400 to 1700 calories. Referring to the list of foods for school children given on page 506 and to the table of food values on pages 602-609, plan a day's feeding for a child of six years.

3. The food for a child nine years old should supply 1700 to 2000 calories. Plan a day's feeding for a child of nine years.

UNIT 6: FOOD PRESERVATION

CHAPTER XXXVII

CANNING FRUITS

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Which spoil more readily, fresh or cooked strawberries? Explain your answer.
2. What is the difference between the cold-pack and hot-pack methods of canning?
3. Why is it necessary to seal cooked fruit in jars in order to keep it?
4. Why should rubbers be used on jars for canning?
5. How can you test a rubber to find whether it is of good quality?
6. How thick should sirup be for canned peaches?
7. Why should a jar of fruit cooked in an open kettle be filled to overflowing?
8. In canning fruit in a water bath, when should you begin to count the time given in a time table?
9. What is meant by *processing*?

What makes foods spoil? In the fall there is usually an abundance of fruit in the orchards or in the markets. However, most of the fruits do not last long; they soon spoil. They must be picked from the trees before they decay if they are to be used as food.

What makes fruit spoil? Let us see:

Experiment 32: *To show how uncooked fruit spoils.*

(a) Place a piece of lemon on a saucer. Cover it with a cup. Let it stand for at least two days. Examine the lemon. Do you notice a hairlike growth on the fruit? If so, molds have grown on the lemon.

(b) Repeat (a) using a piece of apple or banana. After two or more days, what do you see on the fruit?

Molds are plants. They exist in the air and dust. They grow on foods, especially those that contain acids. Since all fruits contain acid, we can understand why molds grow on fruits. Fruit spoils when molds grow on it.

There are plants other than molds which grow on food and spoil it. *Wild yeast plants* exist in the air. These sometimes grow on food. *Bacteria*, about which you learned on page 39, also grow on certain kinds of foods and spoil them. Bacteria are very tiny plants — so tiny that you cannot see them without a powerful microscope. It is the growth of *yeasts*, *molds*, or *bacteria* on foods that makes foods spoil.

Do cooked foods spoil? Housekeepers sometimes cook fruits when they want to keep them from spoiling. Let us see whether cooked fruit will spoil as soon as uncooked fruit.

Experiment 33: *To show how cooked fruits spoil.*

(a) Put some cooked apple or other fruit on a saucer. Cover it with a cup. After two or more days examine it. Have molds grown on the fruit?

(b) Let the fruit stand for at least two days more. Then examine. Have molds grown on the fruit?

We see from this experiment that even though fruit is cooked, it will spoil eventually. Fruit does not usually spoil so quickly when it is cooked, because the molds, bacteria, or yeasts which may be on the food are destroyed, or at least partially destroyed, by cooking. But even though all the tiny plants which make food spoil are destroyed by cooking, there are more of these microscopic plants in the air. Some of these soon get on the food, begin to grow, and cause the food to spoil.

How are foods preserved? We have learned that air contains the tiny plants which may cause foods to spoil. If foods are well cooked, we can keep them from spoiling by keeping the air away. This can be done by sealing the cooked fruit in jars. The jars must be sealed securely so that no air can seep in.

The tiny plants causing foods to spoil may be not only in the air, but on the jars. To destroy those plants, the jars, then, must be heated or scalded. One way of preserving food is to cook it and to seal it in scalded jars. The process of cooking food and sealing it in jars is called *canning*.

What kind of fruit should be selected for canning? Decayed fruit is not fit for canning. To be sure, fruit that is partially decayed may sometimes be cut into pieces and used for making jam or marmalade *provided all the decayed portion is cut away*. When fruit is canned in large pieces, it should be fresh, sound, and slightly underripe. In fresh, sound fruit, it is easier to destroy the organisms which may cause it to spoil, and in under-ripe fruit it is easier to keep the pieces whole during the canning process.

How should fruits for canning be cleaned? Fruits need washing. Large fruits should be washed before they are pared or peeled. Berries and small fruits should be washed before they are stemmed or hulled. Most small fruits are so juicy, *i.e.*, they have so much water in them, that it is not necessary to add water for canning or cooking. Therefore, such fruits should be drained thoroughly after washing. If there are any decayed or bruised spots on fruit, they should be cut away.

The skins are usually removed from fruit for canning. Like most vegetables, fruits should be thinly *pared*. Peaches, apricots, and tomatoes may be *peeled* instead of pared. To do this, place the fruit in a wire basket or colander. Then put the basket in a kettle of boiling water. Let the fruit stand for about three minutes. Then remove it from the water. Put the basket of fruit in cold water for a minute or two. Then lift it out of the water, and drain and peel the fruit.

Large fruits may be cut into halves, quarters, or slices. Fruits from which the skin has been taken may be kept from discoloring by covering with cold water.

How should jars and rubber rings be selected? Glass containers are often used for home canning. There are many different types of glass jars. (See Figure 146.) In buying jars keep in mind the following advantages: (1) large opening so that large pieces of fruit may be inserted, (2) interior easy to clean, and (3) cover tightly fitting.



FIGURE 146. GLASS JARS FOR CANNING

Jars for canning are made in different sizes. A and E hold $\frac{1}{2}$ pint; B and D, 1 pint; C, 1 quart. Two-quart glass jars also are sold.

Several styles of lids are shown here. A and C have glass tops which may be clamped tightly by means of wires. D also has a glass top with a special device for clamping. B has a metal screw top, porcelain lined. E has a metal top which may be sealed automatically with the aid of a clamp which is left on the jar only until it is cool.

Notice the different sizes of the openings of the jars. Why is a jar with a wide opening desirable for large fruits, canned whole?

A rubber ring must be used on a screw-top or glass-top jar so that the cover will fit the jar tightly. It is very important to use new rubber rings. Sometimes after a rubber has been placed on a jar, tiny holes form in the rubber. These allow air to get into the jar. Since air may contain molds, yeasts, or bacteria, the food in the jar spoils.

In selecting rubber rings, make the following tests :

1. Stretch a ring to twice its length. After stretching, it should return to its original size and shape.
2. Fold it tightly ; after folding, no crease or break should show.

How should jars and rubbers be prepared for canning? It is well to test glass jars for leakage before using them for canning. Test jars in this way :

1. Partly fill the jar with water.
2. Adjust the rubber and lid, then seal.
3. Invert the jar.
4. Look carefully for leaks.

To destroy any bacteria which may be on the jars and lids, *scald* them thus :

1. Place the jars sidewise in a large kettle ; also put the lids in the kettle.
2. Fill and surround the jars with cold water.
3. Place the kettle on the stove. Heat gradually until the water boils ; let it continue to boil for at least 15 minutes.
4. Let the jars and lids remain in the hot water until just before using them.
5. Grasp the jars and lids only on the outside. Do not touch the inside with the fingers or with a towel.

Any utensils used in canning, such as cups, spoons, or skewers (for testing food) should be dipped first in boiling water.

Just before placing rubber rings on the jars, dip them in the boiling water. The *lids* of *automatic seal jars* should also be dipped into boiling water before using. Remember that any utensils used in canning may have organisms on them, so they should be boiled, or at least dipped in boiling water, before using.

How are sirups prepared for canning? In studying about the cooking of fruits, we learned that fruits are less likely to be broken up if cooked in a *sirup* rather than in clear water. In canning fruit, we usually prepare a sirup in which to cook it. The quantity of sugar used in making the sirup depends upon the kind of fruit and also upon how sweet we like the fruit.

Sirups commonly used for canning are :

1. *Thin sirup* — 1 cup of sugar to 3 cups of water
2. *Medium sirup* — 1 cup of sugar to 2 cups of water
3. *Thick sirup* — 1 cup of sugar to 1 cup of water
4. *Very thick sirup* — 1 cup of sugar to $\frac{1}{2}$ cup of water

Thick sirup made of *equal measures of sugar and water* is satisfactory for fruits of average sweetness such as peaches and pine-apples. In making a sirup, heat the sugar and water until the mixture boils vigorously. The quantity of sirup used in jars depends upon the size of the fruit and the way the fruit is packed in the jar. For each pint jar, it takes about one cup of sirup; for each quart jar, about two cups.

What is the open-kettle method of canning? One way of canning is to cook fruit in a kettle. Usually sirup is first made in the kettle and the fruit added to the hot sirup. When the fruit has cooked until it is tender, it is poured into scalded jars. After the jar is filled, the rubber is adjusted and the lid screwed on or clamped on. Then the jar is inverted (to detect leakage) and allowed to cool.

This method has been used for many years. However, it is not so satisfactory as some other methods for this reason: When the fruit and sirup are poured into the jar, bubbles of air may get into the jar. If these air bubbles are left in the jar, the fruit is likely to spoil. To be sure, in open-kettle canning, the jar is filled to "overflowing" with sirup so as to push out the air. But often a few bubbles of air are left in the jar.

This method of canning is often used for small fruits containing much water, such as berries. Since fruit and sirup are boiled, some of the water evaporates during cooking.

When very thick sirups are used, fruit is not so difficult to keep. Preserves, jams, and conserves are made with much sugar. These preserved fruits are usually cooked in the open kettle.

How is fruit canned by means of the hot-water bath? A wash boiler is often used for one method of canning fruit. The boiler

is filled with hot water. The fruit is not cooked, of course, directly in the boiler. It is placed in jars which are filled with sirup or water. Before placing the jars in the boiler or bath of hot water, the rubbers and lids must be placed on the jars. If the contents of the jar are not boiling hot, the lids should not be sealed tightly, but should be partly fastened, so they will stay on the jars during cooking. If the jar has a screw top, partially screw it on. If it has a bail top, put only the top bail in place. If the contents of the jar are boiling hot, seal it tightly.

The filled and covered jars are then placed in the boiler of water. Often a wire or wooden rack is used in the boiler to hold the jars in place and to keep them from touching the bottom of the boiler. When one does not have a rack, strips of wood or a wire netting may be placed in the bottom of the boiler.

Enough hot water is put in the boiler so that the water extends about an inch above the lids of the jars.

The water surrounding the jars is heated until it boils. Then the cooking is continued until the fruit is tender. Time tables have been prepared to tell you how long to cook the fruit. (See page 518.) *You should not begin to count the time until the water in the bath boils.*

When sufficiently cooked or *processed*, the jars are lifted out of the hot water. The lids are fastened tightly, the jars inverted and allowed to cool. Store the jars in a dark, cool place.

In this method of canning, *uncooked fruit* may be placed in the jars. The jars are then placed in the hot-water bath and heated as just described. This process of canning is called *cold pack*.

The fruit may be *partly cooked* in a kettle and poured while still hot into the jars. The jars are then packed in the hot-water bath and the cooking continued as in cold pack. This process is known as *hot pack*. When food cooks, it shrinks. In the hot pack method, the fruit is shrunk before it is packed in the jars. This makes it possible to pack more fruit and less sirup in the jars.

Either cold or hot pack is a more sure method of canning than the open-kettle. Not only the fruit but the jars and air bubbles which may be in the jars are heated or processed at the same time. Moreover, because the contents of the jars get hot, they expand and push the air out. Even if a few bubbles stay in the jar, they will do no harm because the bacteria contained in them have been destroyed by heat.

Another advantage of water-bath canning is that foods keep their shape better than when canned in the open kettle.

TIME TABLE FOR CANNING FRUITS¹

The times given for processing in boiling water apply only to places with altitudes of 1000 feet or less. For all altitudes above 1000 feet, the time should be increased 20% for each additional 1000 feet.

When half-gallon glass jars are used, add 5 minutes to times given for pint and quart glass jars.

FRUIT	PREPARATION FOR PROCESSING <i>Wash all fruits very thoroughly.</i>	TIME IN MINUTES FOR PROCESSING PINT AND QUART GLASS JARS IN BOILING WATER
Apples . .	Slice, quarter, or halve. Precook by boiling 5 minutes in a thin sirup or steam until wilted. Pack <i>hot</i> . Cover with <i>boiling</i> sirup Same as above but dry-packed Or boil whole in sirup, or bake as for serving (400 F.). Pack <i>hot</i> . Cover with <i>hot</i> sirup Or pack hot in the form of apple sauce	15 20 5 5
Apricots . .	Prepare in the same way as peaches. Pack raw, cover with <i>hot</i> sirup Precook by simmering in sirup 4 to 8 minutes and pack <i>hot</i>	25 15
Blackberries	Pack raw in container, pressing the fruit gently. Fill with <i>boiling hot</i> , medium sirup Or precook by adding $\frac{1}{4}$ to $\frac{1}{2}$ pound sugar to each pound berries and boil 3 to 4 minutes. Pack <i>boiling hot</i> . .	
Blueberries		
Dewberries		20
Huckleberries		
Loganberries		
Raspberries		5

¹ Adapted from Farmers' Bulletin No. 1762, *Home Canning of Fruits, Vegetables, and Meats*, United States Department of Agriculture, 1936.

FRUIT	PREPARATION FOR PROCESSING <i>Wash all fruits very thoroughly.</i>	TIME IN MINUTES FOR PROCESSING PINT AND QUART GLASS JARS IN BOILING WATER
Cherries . .	Prick. Pack unpitted in hot containers, cover with boiling sirup, using thick sirup for sour cherries, and medium for sweet	25
	Or remove pits, add sugar as desired, boil 5 minutes. Pack boiling <i>hot</i> . . .	5
Currants . .	Same as berries.	
Gooseberries .	Pack raw in containers. Fill with boiling <i>hot</i> , thick sirup	20
	Or add small quantity of water. Boil until cooked to a pulp. To each quart pulp add $\frac{1}{2}$ cup or more of sugar. Heat until sugar is dissolved. Pack boiling <i>hot</i>	5
Peaches . .	Scald, dip into cold water, and peel. Cut into halves, removing pits. Fill containers, then add thin or medium sirup as desired. Boil one cracked peach pit in every quart of sirup. Strain out before using.	
	Soft fruit	25
	Firm fruit	35
	Precook by simmering in sirup 4 to 8 minutes. Pack <i>hot</i>	15
Pears . . .	Pare, cut in halves, core. Cook 4 to 8 minutes in boiling, medium sirup. Pack <i>hot</i> , cover with <i>boiling</i> sirup	20
Pineapples .	Pare, core, remove "eyes." Slice crosswise. Pack in containers. Cover with <i>boiling</i> thin sirup	30
Plums . . .	Prick. Put into containers. Cover with <i>boiling</i> medium sirup	20
	Or prepare sauce by cooking with sugar to taste. If desired strain out pits and skins. Pack <i>hot</i>	5
Rhubarb . .	Cut in half-inch lengths. Boil until soft in thick sirup. Or add $\frac{1}{4}$ as much sugar as rhubarb by measure. Bake in a covered baking dish (350 F.) until tender. Pack boiling <i>hot</i> in hot containers	5
Strawberries	To each quart, add 1 cup sugar. Bring slowly to boiling point. Let stand over night in kettle. Reheat to boiling. Put into containers while <i>hot</i>	5

How is fruit canned in the oven? A jar may be filled with fruit and sirup in the same way as for water-bath canning. The rubber and lid are placed on the jar and the lid partially sealed. Then the jar is put on the grating of a heat-regulated oven.

The oven should be heated to a certain temperature, 275° F. for most fruits; the jar should be left in the oven for a certain length of time. At the end of the time, the jar is removed from the oven and sealed immediately. It should be inverted and allowed to cool.

There are several important points to remember in oven canning:

1. The oven heat regulator should be registering accurately. After the stove is installed in the kitchen, its oven should be tested as explained on page 177.

2. The jar should be filled to within one inch of the top. The sirup may run over if the jar is filled full of sirup.

3. The jars should not touch one another. There should be about two inches of space between the jars so there will be good circulation in the oven.

4. If the fruit is cold packed, boiling hot sirup should be poured into the jar.

5. The fruit, whether cold or hot packed, should be put in the oven *immediately* after the jars are filled.

6. The time given in directions for oven canning, obtained from the firm manufacturing your stove, should be followed carefully. A longer time is required for cold pack than for hot pack.

7. The contents of a jar do not reach a temperature higher than the boiling point of water. Oven-canning is satisfactory for canning fruits and acid vegetables such as tomatoes.

SUMMARY

Foods spoil because microscopic plants grow on them.

The microscopic plants causing foods to spoil are *yeasts*, *molds*, and *bacteria*. These plants are also called *microörganisms*.

One way of preserving foods is to:

1. Heat them to destroy bacteria and other microörganisms.
2. Seal them in jars to exclude air which contains bacteria and other microörganisms.

The process of cooking food and sealing it in jars or cans is called *canning*.

Methods of canning commonly used for fruits:

1. Open kettle
2. Hot-water bath: (a) cold pack (b) hot pack
3. Oven canning

Heating foods during canning in order to destroy bacteria and other organisms is called *processing*.

REVIEW QUESTIONS AND EXERCISES

1. A girl cooked some peaches in an open kettle. She merely washed the jar in which she poured and sealed the fruit. The peaches spoiled. What probably made them spoil?

2. Some pears were canned in the hot-water bath. Old rubbers were used in sealing the jars. The pears spoiled. What was the probable cause of spoiling?

3. Some uncooked plums were placed in a cold jar. A sirup which had been allowed to get cold was poured around the plums. The jar was partly sealed and placed in a hot-water bath. The jar cracked. What probably caused the breakage?

4. A jar of fruit was inverted immediately after canning. A bit of sirup oozed out from under the rubber. What should have been done with the jar of fruit to prevent spoiling?

5. A jar of deep red cherries was stored in an open shelf near a window. The cherries became lighter red in color. How could the change of color probably have been avoided?

HOME WORK

1. If possible, can some fruit at home. Grade the results of your work by following a *score card*. You cannot score your work thoroughly unless you open the jar and taste the fruit. The flavor is one of the most important items. You probably do not want to open a jar until later in the year. If the fruit is in a clear glass jar, you can, without opening it, score points other than flavor.

SCORE CARD FOR CANNED FOOD

Appearance of food

	PERFECT SCORE
Color	10
Arrangement in jar	5
Uniformity of size	5

PERFECT SCORE

Container

Neatness	5
Rubber (new)	10
Label (neatness and complete information)	<u>5</u>
<i>Total</i>	40

If you open the jar, the scoring may be completed as follows:

Contents of jar

Flavor	40
Texture (firmness)	<u>20</u>
	60

The total perfect score would then be 100.

Your teacher may ask you to hand in the score of your fruit.

CHAPTER XXXVIII

CANNED AND DRIED VEGETABLES

Can you answer these questions? If not, look for the answers as you study this chapter.

1. What vegetable contains acid?
2. What is meant by *non-acid vegetables*? Name some
3. Why are non-acid vegetables more difficult to preserve than acid vegetables?
4. In what utensil is it advisable to can non-acid vegetables? Why?
5. Why is it necessary thoroughly to clean vegetables that are used for canning?
6. Is a sirup poured around vegetables when they are canned? What liquid is used?
7. Should the liquid around canned vegetables be used as food? Why?
8. Why does fresh corn spoil readily, while dried corn does not?
9. What do gas bubbles inside a jar of food indicate?
10. At what temperature may foods be canned in a pressure cooker?

Why are tomatoes more often canned successfully than other vegetables? Tomatoes, as we all know, have a sour taste. This means that they contain acid. Most vegetables do not contain much acid. We call vegetables not having a pronounced acid taste *non-acid vegetables*.

Because tomatoes contain acid they can be canned in the same way as fruits. In fact, as stated on page 269, tomatoes are really fruits. On the dining table, however, they are used as vegetables. For this reason we speak of tomatoes as vegetables. Bacteria which may cause food to spoil are usually killed if they are boiled in an acid substance.

Pickled beets also may be canned in the ordinary hot-water

bath because vinegar (containing acid) is poured around the beets. *Pimientos* also are canned in the hot-water bath.

TIME TABLE FOR CANNING TOMATOES, PICKLED BEETS, AND PIMIENTOS¹

VEGETABLE	PREPARATION FOR PROCESSING <i>Wash all vegetables very thoroughly.</i>	TIME IN MINUTES FOR PROCESSING PINT AND QUART GLASS JARS IN BOILING WATER
Tomatoes . .	Scald, dip in cold water, peel, core. Pack whole. Cover with <i>hot</i> tomato juice. Add 1 teaspoon salt to each quart	45
Pickled beets	Or quarter, heat to boiling, pack <i>hot</i> Precook, peel, and slice into jars. Add $\frac{1}{2}$ teaspoon salt per pint. Cover with <i>boiling</i> mixture of equal measures of vinegar and sugar	5
Pimientos	Heat in hot fat or in the oven to loosen peel. Peel, remove stems and seed cores. <i>Pack in pint jars.</i> Add $\frac{1}{2}$ teaspoon salt per pint and no liquid	30
		40 (Pints only)

How should non-acid vegetables be canned? Six hours or more of boiling may be needed to kill certain organisms in non-acid foods.² Because it would not be practical to cook vegetables for six hours, it is believed best to can non-acid vegetables at a temperature higher than that of ordinary boiling water (212° F.). Foods can be heated to a temperature higher than 212° F. in a *pressure cooker*. In this device, vegetables can be heated to 250° F.

There are some kinds of bacteria which, if not destroyed, will grow in canned foods and produce poisons. The poisons caused by such bacteria are very dangerous. The bacteria which produce the dangerous poisons in foods are not destroyed in a non-acid substance at boiling temperature. Therefore *canning*

¹ Adapted from Farmers' Bulletin No. 1762, *Home Canning of Fruits, Vegetables, and Meats*, United States Department of Agriculture, 1936.

² See page 2 of *Home Canning of Fruits, Vegetables, and Meats*, United States Department of Agriculture Bulletin, No. 1762, 1936.

non-acid vegetables at a higher temperature than 212° F. is advised by the Bureau of Home Economics, U. S. Department of Agriculture.¹

How should vegetables be prepared for canning? It is very important to have *fresh* vegetables for canning. If possible, vegetables should be canned immediately after they are picked in the garden. Those who grow vegetables in sufficient quantity for canning can use freshly picked vegetables. Tender and sound vegetables should be selected.

The roots of vegetables, or parts of the plant that grow on top of the ground or close to the ground, are used as food. Such vegetables may have bits of earth on them. *It is very important to clean all vegetables for canning so well that no specks of earth are left on them.* The soil sometimes contains dangerous bacteria. As previously suggested for cooking vegetables (see page 279), a brush is a good tool to use in cleaning them. In washing vegetables, lift them into another container instead of pouring the water off. In this way, bits of soil in the bottom of the first container may be rinsed away more thoroughly.

How should vegetables be packed in the jars? Non-acid vegetables should be *hot when they are packed* in the jars. *This means that non-acid vegetables should be partially cooked before they are packed.* Partial cooking shrinks the vegetables so that they can be packed more easily.

Instead of a sirup, as in the canning of fruits, we pour boiling water into the jars of vegetables. To each quart jar, one teaspoon of salt is added. After packing, put the rubber and lid on the jar, sealing the lid.

How are foods canned in the pressure cooker? In a pressure cooker, cans of food are not immersed in water. They are

¹ See United States Department of Agriculture Farmers' Bulletin No. 1762, *Home Canning of Fruits, Vegetables, and Meats*, 1936.

Also see *Bacteriological Problems in Home-Canning Procedures* by Dr. F. W. Tanner, *Journal of Home Economics*, Vol. 26, No. 6, page 365.

placed on a rack in the bottom of the cooker. Water is poured into the bottom of the cooker but it should not cover the rack that supports the jars. When this water boils, it fills the cooker with steam. Since the cooker is closed tightly with a lid which is clamped on, the steam is held under pressure. In this condition the water boils at a higher temperature than usual, and the steam becomes hotter than 212° F.

Pack vegetables as nearly *boiling hot* as possible, using additional boiling water if necessary. Add one teaspoon of salt to a quart for all vegetables and two teaspoons of sugar, if desired, to corn. Seal. Place the jars or cans in the hot canner as soon as they are filled.

After placing the boiling water in the bottom of the cooker, bring the water to a boil. Place the jars on top of the rack. Do not let the jars touch one another.

Place the cover on the cooker. The lids of some cookers have several clamps. In this case partly tighten opposite clamps, one pair at a time. After all clamps have been partly tightened, go over all the clamps again in the same order and tighten them securely.

All the air should be let out of the cooker. To do this, keep the pet cock open until a steady stream of steam has issued from the pet cock for 7 to 10 minutes.¹

Then close the pet cock. The gauge on the cooker indicates the pressure of steam on the inside. Let the water in the cooker continue to heat until the gauge indicates the desired pressure. Then keep the gauge at this pressure by regulating the flame under the cooker. *Begin to count the time when the desired pressure is registered on the gauge.* (See the table ² on page 528 for pressures and times.) A pressure of 10 pounds gives a tem-

¹ According to a preliminary report of research work in canning done at Iowa State College.

² Adapted from Farmers' Bulletin No. 1762, *Home Canning of Fruits, Vegetables, and Meats*, United States Department of Agriculture, 1930.

perature of about 240° F.; a pressure of 15 pounds, 250° F. Check the accuracy of the gauge with the thermometer.

If you live at an *altitude more than 2000 feet above sea level*, commencing with 2000 feet add one pound of pressure for each 2000 feet of elevation. If the cooker has a thermometer, it may be used as an indicator of pressure.

When the glass jars have been heated for the desired length of time, remove the cooker from the flame. Without opening it, let the cooker cool until the gauge registers zero. Then open the pet cock. Now open the cooker *cautiously*. Lift up the lid in such a way that the steam will not burn your face. Remove the jars. Invert them and let them cool.

How should canned foods be stored? When the jars are inverted after canning, they should be observed carefully to see if there is any leak. If leaky jars are discovered, they should be opened. The food should be heated, poured into other jars, and processed a second time.

Wash the outside of the jars. Label them, giving the name of the food and the date. It is often well to indicate the method of canning on the label.

The jars should be observed not only for leakage, but for spoilage. To do this, let the jars remain for about a week where you can watch them occasionally. Some kinds of spoilage are indicated by bubbles of gas forming in the jar.

If you see no signs of spoiling, put the jars in a cool dark place. The jars may be wrapped in paper in case the place in which they are stored is not dark.

How should canned foods be examined before use? *Before opening* any canned vegetable and fruit, whether it is bought at the store or canned at home, look at it carefully. It is not safe to use canned foods which are spoiled. The following conditions indicate that the foods in the can are spoiled:

Tin cans — Bulged at the top and bottom.

Glass jars — (1) Bulged metal cover. (2) leakage round the lid or

PRODUCT	PREPARATION FOR PROCESSING <i>Wash all vegetables very thoroughly. Add 1 teaspoon salt to each quart jar. Pack all vegetables hot.</i>	PROCESSING	
		TIME IN MINUTES AT PRESSURE IN POUNDS	
		Quart glass jars	Pint glass jars
Asparagus . .	Tie in uniform bundles, place in saucepan with boiling water over lower tough portion. Cover tightly, boil 2 to 3 minutes. Pack <i>hot</i> . Or cut in half-inch lengths, boil 2 minutes in water to cover in un- covered vessel. Pack <i>hot</i> in water in which boiled	35 at 10	30 at 10
Beans, lima .	Use young, tender beans. Shell, wash. Bring to boil in water to cover. Pack, cover with boiling water . .	55 at 10	50 at 10
Beans, snap .	Cut into pieces. Add boiling water to cover. Simmer uncovered 5 minutes or until beans are wilted. Pack <i>hot</i> , cover with hot water . .	35 at 10	30 at 10
Beets, baby .	Can only young, tender beets. Scald in boiling water, or steam until skins slip easily. Skin, pack <i>hot</i> . Fill with hot water	35 at 10	30 at 10
Corn	Cut from cob without scraping (whole-grain style). Or cut off tops of kernels, and with back of knife scrape out pulp (cream style). Add half as much boiling water as corn by weight.	70 at 10	60 at 10
whole grain .	Heat to boiling. Pack <i>hot</i> at once	. . . .	75 at 15
cream style .	Pack <i>hot</i> in pint jars only		
Greens, includ- ing spinach .	Cover with water heated to sim- mering, not boiling. Cook uncovered 5 minutes or until wilted. Pack, not too solidly, having liquid to cover .	65 at 15	60 at 15
Okra	Can only young, tender pods. Cover with water, bring to boil. Pack <i>hot</i>	40 at 10	35 at 10
Peas	Use only tender young peas.		
green	Cover with hot water. Simmer about 5 minutes. Pack in <i>pints</i> . .	. . . .	45 at 10
black-eyed .	Same as lima beans	55 at 10	50 at 10
Sweet potatoes	Boil or steam until skins slip readily. Peel quickly. Cut into medium pieces. Pack <i>hot</i> , cover with <i>boiling</i> water	120 at 10	95 at 10

rubber, (3) gas bubbles inside jar, (4) discolored or unnatural color of fruit or vegetable and liquid around it.

When opening the can or jar notice whether gas rushes out and the liquid spurts out. If the air rushes in, the can or jar has probably been securely sealed.

After opening, look carefully at the fruit or vegetable and the liquid around it. Notice: (1) odor, (2) color, and (3) texture. Also in case the fruit or vegetable is in a tin can, notice the inside of the can. It should be well lacquered and not markedly corroded.

Unfortunately the most dangerous poisoning that may occur in canned foods, especially non-acid vegetables, cannot always be detected by the appearance of the food. Hence it is advisable to boil all canned non-acid vegetables before using them.¹ This should be done before tasting the food. Even though a canned non-acid vegetable or canned meat looks all right, it should be cooked at boiling temperature for at least 10 minutes before tasting. If a canned vegetable or fruit looks spoiled, burn it. It is not safe to take even a taste of it.

We have learned that when vegetables are cooked in water, some of the mineral matter and vitamins are dissolved in the water. (See page 416.) When water is poured around vegetables in canning them, some of these nourishing substances are dissolved, of course, in the water. Hence nourishing materials are lost if the water is drained from canned vegetables and thrown away. In case the water is drained from vegetables, it may be used in making soup.

Even though the liquid around canned vegetables is used, the vegetable and liquid (except canned tomatoes, pineapple, and other acid foods) may not furnish much vitamin C. This vitamin is easily destroyed in canning unless the food is canned in a sealed container from which the air has been removed, — the process commonly followed in commercial canning. Hence use some uncooked fruit or vegetables rich in vitamin C.

¹ See page 17 of Farmers' Bulletin, No. 1762, *Home Canning of Fruits, Vegetables, and Meats*, United States Department of Agriculture, 1936.

How are foods preserved by drying? We know that fresh peaches will spoil in a short time. Dried peaches will keep for several months. The main difference between fresh and dried fruits, as explained on page 40, is that dried fruits contain only a small quantity of water; fresh fruits contain much water. The organisms which cause foods to spoil need moisture for their growth. This is why dried foods do not spoil readily.

The value of dried fruits is mentioned on page 41. Fruits and vegetables are commonly dried in a factory. They may be dried in the home also.

Beans, peas, and other vegetables are dried. Recall that dried beans were used for preparing baked beans. (See page 260.) Although dried vegetables require long cooking, they are an inexpensive food. It is thought that drying destroys vitamin C. Because of the drying and the long cooking to make them tender, there is probably very little, if any, vitamin C in dried vegetables.

The method commonly used in the home for drying food is to place it in the sun or in a "cool" oven. Dried corn is a delicious food. If you have corn growing in your garden, you may want to learn to dry some of it.

DRIED CORN

Select tender corn. To insure a fine flavor, it is well to begin to dry corn as soon as possible after picking it.

Remove the husks. Put the ears into boiling water and cook at boiling temperature for 5 minutes. Corn should be cooked long enough so that no juice will flow when the kernels are broken. Remove from the water; drain well.

Cut the kernels from the corn. An especially fine product may be prepared by cutting off the tips of the kernels and then scraping out the remaining pulp with the back of a knife. In this way the corn is separated from most of the tough hull. Spread it on a cloth placed on a platter, or tray. If protection from dust or flies is necessary, cover it with another clean cloth. Place in a slow oven, leaving the oven door open, or dry in the sun. Stir the corn often during drying. About 10 or 12 hours are usually required for oven-drying.

SUMMARY

Tomatoes are *acid vegetables*.

Vegetables having no pronounced acid taste are *non-acid vegetables*.

Non-acid vegetables are more difficult to can successfully than acid vegetables.

When there is practically no acid in food, six hours of cooking at boiling temperature may be needed to kill some bacteria which may be in the food.

It is advisable to cook non-acid vegetables in the *pressure cooker*. By means of this device, the vegetables can be canned at a temperature higher than 212° F. in a much shorter time.

Vegetables for canning: (1) freshly picked, if possible, (2) sound and tender, and (3) thoroughly cleaned.

Boil all non-acid canned vegetables for at least 10 minutes before using.

Foods may be preserved by *drying*.

REVIEW QUESTIONS AND EXERCISES

Some of the following statements are true and some are false. Read each statement very carefully and decide whether it is true or false. On a piece of paper or in your notebook, list the numbers corresponding to the statements. After each number, write the word True or the word False.

1. Tomatoes are acid vegetables.
2. Beets are acid vegetables.
3. It is safe to cook tomatoes in the ordinary hot-water bath.
4. It is not advisable to cook non-acid vegetables in the ordinary hot-water bath.
5. The time of processing vegetables in the pressure cooker should be counted as soon as the cans are placed in the cooker.
6. Vegetables canned in the pressure cooker should be put in the jars *cold*.
7. Taste no canned food that appears to be spoiled.
8. Store jars in a light place.
9. Cans having bulged ends contain spoiled foods.
10. Fruits should be stored immediately after canning.

HOME WORK

If you have a pressure cooker, can, if possible, non-acid vegetables.

If you have no pressure cooker, can, if possible, some tomatoes.

If the vegetables are canned in glass jars, score them according to the score card on page 521.

CHAPTER XXXIX

PRESERVES, CONSERVES, JELLY, AND SPICED FRUIT

Can you answer these questions? If not, look for the answers as you study this chapter.

1. What wholesome substances may be used in canned fruit to help preserve it?
2. What is the chief difference between preserves and canned fruit?
3. Why do some fruits fail to jelly?
4. What fruits are especially good for making jelly?
5. How can fruit juices be tested to find whether jelly can be made from them?
6. Why should sugar used in making jelly be heated before it is added to the fruit juice?
7. How does jam differ from jelly?
8. Why is jelly sealed in a different way from canned fruit?
9. For what two reasons is the rind of oranges used in making orange marmalade?

Does sugar help in preserving foods? An answer to this question may be obtained from the following:

Experiment 34: *To learn whether sugar helps to prevent fruits from spoiling.*

(a) Put 2 thin slices of peaches or other fruit on a dish. Sprinkle sugar generously on both sides of one of the slices. Allow the dish to stand for at least 24 hours. Examine each slice. What change has taken place in the slice without sugar? Is the fruit spoiled?

(b) Has the same change taken place in the slice with sugar? Is the sugared fruit spoiled?

When fruit is *canned*, a sirup is used which generally contains less sugar than water or equal parts of sugar and water. When fruit is *preserved* or made into jam and similar mixtures, more

sugar than water is used. The large amount of sugar helps to keep the fruit from spoiling.

Because so much sugar is used in making jam and like mixtures, the jam is put into glasses and sealed in a different way from canned fruit. The open-kettle method is used for making preserves, jams, and similar products.

How are preserves made? Preserves are usually made in the same way as canned fruits except that the sirup in which they are cooked contains more sugar.

PRESERVES

To tell how much sugar to use, weigh the fruit after it is ready for cooking. For cherries, currants, and plums use equal weights of sugar and fruit. Use three-fourths as much sugar as fruit for spiced peaches, quinces, strawberries, and raspberries. *Remembering that a pound of sugar measures 2 cups, use 1 cup of water with each pound of sugar.* Bring the sirup to a boil and add fruit. Cook until tender. Seal in jars in the same way as canned fruit.

Strawberries are often preserved by following the method given in the time table on page 519. When the berries stand over night in sirup, some of the sirup is absorbed by the berries. The fruit thus becomes more plump.

How are jams made? In making preserves, we try to preserve the shape of the fruit. In making jams, the fruit is crushed.

A finer flavor can be obtained in making jam, if the fruit is cooked *without sugar* until tender. Then the sugar is added and the cooking continued until the mixture is stiff.

In cooking fruit for jam as little water as possible should be used. If we cut large fruits into very small pieces and crush berries and other small fruits, very little water needs to be added.

JAM

Pare or peel large fruits and cut them into small pieces. Mash small fruits. Add a very little water to the fruit and cook until tender.

Measure the cooked fruit. For each cup of fruit measure $\frac{3}{4}$ to 1 cup of sugar. Mix well. Cook; stir occasionally to prevent scorching. When the mixture falls in heavy drops from the spoon, the jam is

cooked enough. Pour into jelly glasses which have been scalded in the same way as jars. (See page 515.) Melt paraffin over hot water. Pour it over the hot jam. Set aside to cool; then add more paraffin.

Cover the glasses with lids. Wash the outside of the glasses. Label and store.

What are marmalades and conserves? In making jams, the seeds of berries and the skins of some fruits are used. In making marmalades, the fruit is cooked in water until tender. Then the mixture is strained to remove the seeds and skins. Finally the sugar — in the same proportion as used in making jams — is added. The mixture is then cooked until stiff.

Orange marmalade is made from the rind and pulp of orange. Only the seeds are discarded. Rind in small pieces is left in the mixture.

Conserves are mixtures of several fruits. Often nuts are added. They are made in the same way as jams.

PEACH CONSERVE

1 peck peaches	Sugar, as much by measure as
2 oranges — pulp and grated rind	cooked fruit
2 lemons — juice	1 cup soft-shelled walnut meats
Water, about 1 cup	cut in pieces

Pare the peaches. Cut them into small pieces. Add the fruit juices and grated rind. Stir well. Add a very small quantity of water. Cook the mixture until the fruit is tender.

Measure the cooked fruit. Add an equal measure of sugar. Also add the nuts. Cook until the mixture is stiff, stirring occasionally.

Pour into scalded glasses. Pour melted paraffin over the conserve. When cool, add more paraffin. Cover, label, and store. Yield: 15 glasses.

WINTER CONSERVE

1 pound prunes	1½ cups cranberries
1 orange	2½ cups sugar
½ lemon	1 cup soft-shelled walnut meats
1 quart water	cut in pieces

Wash the prunes. Cut the oranges and lemon (rind and pulp) into thin slices. Discard seeds. Mix the fruit; add the water and soak to

soften the prunes. Cook the fruits in this water until they are tender. Cool. Take the prunes from the mixture. Remove the stones. Return the prunes to the cooked fruit.

Add the cranberries, sugar, and nuts to the fruit mixture. Cook until the mixture is thick. Pour into scalded glasses. Add paraffin. When cool, add more paraffin. Cover and label. Yield: 6 glasses.

RHUBARB-PINEAPPLE CONSERVE

3 pounds rhubarb	1 lemon, juice and grated rind
1 cup pineapple, shredded	1 orange, juice and grated rind
4 cups sugar	

Wash the rhubarb. Do not peel it. Cut it into inch pieces.

Wash the pineapple, pare it. Remove the eyes. Cut into slices. With a fork tear the pineapple into shreds, discarding the core.

Mix the fruits and sugar. Heat slowly. Let the mixture cook until it is stiff enough for marmalade. Pour into scalded glasses. Add paraffin. When cool, pour more paraffin over the fruit. Cover and label. Yield: 6 glasses.

ORANGE MARMALADE

4 oranges	1½ times as much water as fruit
2 lemons	½ as much sugar as cooked fruit
mixture	

Wash the oranges and lemons. Without peeling, cut them into very thin slices. Remove the seeds when slicing the fruit. Measure the sliced fruit in a quart measure.

Put the fruit in a granite or aluminum kettle. Add 1½ quarts of water for each quart of fruit.

Cover the mixture and let it stand over night. Then cook it, uncovered and boiling gently, for 1 hour. Let the mixture cool and again let it stand over night.

Measure the cooked mixture. For each quart of fruit, add ½ quart of sugar. Cook slowly for about 1 hour or until the mixture drops from a spoon in thick drops.

Pour into scalded glasses. Pour hot paraffin on top of the marmalade. When cool, add more paraffin. Cover and label. Yield: 6 glasses.

What makes some fruits jelly? Housekeepers have found that there are certain fruits from which jelly can be made. From other fruit, jelly cannot be made unless some substance

other than sugar is added. Let us see what fruits must contain in order to make jelly from them.

Experiment 35: *To test fruit for pectin.*

To $\frac{1}{2}$ cup of grapes or cranberries or a sliced apple, add a little water. Cook until the fruit is tender. Mash the fruit. Strain it through a cheese cloth.

Put 1 teaspoon of the strained fruit in a test tube. Add 1 teaspoon of alcohol.¹ Without shaking, set the mixture aside for 5 minutes. What change has taken place in the strained fruit juice?

The solid substance formed in the fruit juice is a kind of carbohydrate, called *pectin*. All fruits do not contain enough pectin to jelly. Strawberries contain but little pectin. Orange and lemon rind are rich in pectin. The rind is used in making orange marmalade not only for flavor, but because it contains pectin.

There is another substance which fruits must contain so that jelly can be made from them. The second substance is *acid*. Currants, crabapples, grapes, and apples contain pectin; we know that they contain acid because they taste sour. These fruits are all excellent jelly-making fruits.

Can fruits containing no pectin be used for making jelly? It is possible to mix strawberries and currants and prepare jelly from the fruit mixture. The currants furnish enough pectin to stiffen the mixture. Other fruits rich in pectin can be added to fruits containing little pectin and jelly made from the combination.

Commercial pectin can now be purchased in liquid form. By adding this commercial product to a fruit containing but little pectin, jelly can be made. Commercial pectin is often added to fruits rich in pectin. The advantage of this is that the fruits do not require so much cooking as when no commercial pectin is

¹ If wood or denatured alcohol is used, it should be handled carefully. Both these substances are very poisonous. Wash the hands thoroughly after doing this experiment.

added. Because the fruit needs but little cooking, a flavor more like that of fresh fruit is obtained.

Although the use of pectin requires the use of more sugar, the finished product contains a slightly smaller proportion of sugar than when no commercial pectin is used. The reason for this is that, because so little cooking is required, there is little evaporation.

Commercial pectin may be used not only for making jelly but also for making jams, conserve, and other fruit mixtures. When using commercial pectin in making jams or conserve, the fruit should be crushed or cut into bits. During the short cooking the heat would not permeate large pieces of fruit. Then the fruit would not keep. A recipe for a conserve made with four different fruits and commercial pectin follows:

FOUR-FRUIT CONSERVE

2 cups red raspberries	1 cup water
2 cups gooseberries	6½ pounds (13 cups) sugar
2 cups currants	1 cup commercial pectin
2 cups cherries	

Wash all the fruits. Stem the gooseberries and currants. Seed the cherries. Put all the fruits in a preserving kettle and crush them with a potato masher. Add the water. Boil gently for 15 minutes.

Add the sugar. Heat again and let boil vigorously for 1 minute. Remove from the fire. Add the commercial pectin. Skim. Pour into scalded glasses. Pour hot paraffin over the hot fruit.

When cool, pour more paraffin on the top of each glass. Cover, label, and store. Yield: 12 glasses.

The four different fruits make a conserve of delicious flavor.

How is jelly made? Underripe fruit containing both pectin and acid is best for making jelly.

JELLY

Wash the fruit. Remove stems from small fruits. Cut large fruits in pieces. Do not pare them or remove the core and seeds unless they are decayed. Add water to the fruits. To the small juicy fruits add

very little water — *1 cup water to 4 quarts fruit.* Measure the larger fruits. *Add $\frac{1}{2}$ as much water as fruit.*

Cook the fruit (boiling it gently) until tender. Mash the fruit when it is tender. Pour the cooked fruit into a flannel bag. Let the juice strain through the bag. Measure the strained juice.

It is important to know whether there is much or little pectin in the fruit juice. The quantity of sugar to be added is determined by the amount of pectin. The more pectin there is present, the greater the quantity of sugar required.

To test for pectin, pour 1 tablespoon of the fruit juice in a test tube or small dish. Add 1 tablespoon of alcohol as directed in Experiment 35, page 536. Let stand without stirring.

If the juice becomes solid, use equal measures of fruit juice and sugar.

If from $\frac{1}{2}$ to $\frac{3}{4}$ of the juice forms jelly, use $\frac{3}{4}$ as much sugar as fruit juice.

If less than $\frac{1}{2}$ of the juice forms jelly, use $\frac{1}{2}$ as much sugar as fruit juice.

Put the sugar in a pan or bowl and heat it in a "cool" oven.

Put the juice on to boil. Let it boil for about 8 minutes. Add the hot sugar. (Cold sugar stops the boiling. Jelly should be made as quickly as possible. Jelly may fail to stiffen if cooked too long.)

Continue the cooking until the mixture becomes thick. *Test the jelly for proper stiffness by observing how it drops from a spoon.* The mixture is stiff enough when two thick drops formed side by side fall from the edge of the spoon.

Pour the jelly mixture into scalded glasses. Pour paraffin over the jelly. When cool, pour more paraffin on the top of each glass. Cover, label, and store.

The solid portion of the fruit left in the flannel bag may be made into marmalade. Another way to use it is to press more juice from it with the hands. The juice thus extracted may be used for making more jelly. It will not be as clear as the jelly made from the first extraction.

What substances other than sugar help to preserve foods? Not only sugar, but vinegar, salt, and spices help to preserve foods.

Pickles are commonly made by preserving cucumbers or other vegetables in salt and vinegar. As stated on page 435, relishes made from fresh, uncooked vegetables are more wholesome than pickles.

Spices are often used in a sirup to preserve fruits. Spiced peaches, pears, and other fruits are popular. A recipe for pineapple canned in a spiced sirup follows:

SPICED PINEAPPLE

1 can sliced pineapple, No. 2½	20 cloves
½ cup vinegar	2 tablespoons stick cinnamon,
2 cups sugar	broken into inch pieces

Drain the sirup from the pineapple. Add vinegar, sugar, and spices to it. Heat until the sirup boils.

Cut the slices of pineapple into quarters. Add the pineapple to the sirup. Cook at boiling temperature for at least 10 minutes.

Pour into scalded jars. Fill to overflowing. Seal.

Variation. — *Fresh pineapple* may be used instead of canned pineapple. Prepare the pineapple as directed on page 535. Cut it into slices, then cut each slice into quarters. Prepare a sirup from the materials given in the recipe, using ½ cup water. Cook the pineapple in the sirup until it is tender. Can as directed in the foregoing.

SUMMARY

Sugar, spices, salt, and vinegar aid in preserving foods.

Foods preserved with *much sugar* are:

1. Preserves
2. Jams
3. Marmalades
4. Conserves
5. Jelly

The open-kettle method is used for cooking foods preserved with much sugar.

Most foods preserved with much sugar are stored in *glasses* and *sealed* with *paraffin*.

Jelly can be made from fruits containing *pectin* (a carbohydrate) and *acid*.

Good jelly-making fruits are currants, crabapples, grapes, and quinces. Jelly, jams, and similar foods may be made from fruits *lacking in pectin* if commercial pectin is added to the fruit and sugar mixture.

Steps in making jelly:

1. Cook the fruit until it is very soft.
2. Strain it through a flannel bag.

3. Test a tablespoon of the juice for pectin.
4. Measure the sugar and heat it.
5. Add the hot sugar to the boiling juice.
6. Cook it until it is thick.
7. Pour it into glasses ; pour paraffin over the hot jelly ; cool.
8. Seal the glasses with more paraffin, cover, and label.

REVIEW QUESTIONS AND EXERCISES

Each of the following statements is completed in more than one way, only one of which is correct. Read each statement carefully and choose the correct word or phrase to complete it. Then copy the statement including only the correct conclusion.

1. For making jelly, select fruit that is (a) overripe (b) underripe.
2. Large fruits used for making jelly should be (a) pared (b) left whole (c) cut into pieces without paring.
3. Good jelly-making fruits contain (a) pectin (b) water (c) sugar.
4. A good jelly-making fruit is (a) strawberry (b) currant (c) peach.
5. In making jelly, the sugar added to the boiling hot juice should be (a) hot (b) cold.
6. Test fruit juice for pectin with (a) water (b) salt (c) alcohol.
7. To make jelly from strawberries add (a) acid (b) commercial pectin.
8. When cooking fruit to make jam, add (a) much water (b) little water.
9. Pectin is a (a) fat (b) protein (c) carbohydrate.
10. In making jelly from large fruits, add to the fruit before cooking (a) an equal measure of water (b) half as much water (c) twice as much water.

HOME WORK

If possible, prepare jam, jelly, or similar food at home.

Glasses of delicious jams and conserves make gifts for the holiday season that are suitable for many persons. Prepare these fruits in the fall for gift-giving.

UNIT 7: HOSPITALITY

CHAPTER XL

PICNIC LUNCHESES

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Why are paper dishes and napkins especially desirable for a picnic lunch?
2. Why may it be necessary to carry drinking water from home for a picnic, even though there is a stream of water on the picnic grounds?
3. What obligations do picnickers have in building a fire?
4. What are some ways of providing hot foods at a picnic?
5. Is clear, sparkling, spring water always safe to drink?
6. How may a fire in the woods be put out?
7. How can you roast corn and potatoes at a picnic?

What may make a picnic lunch successful? Is it the fresh, cool air and the green of the trees and shrubs that makes a lunch or supper served outdoors taste so good? Whatever it is, we know a picnic lunch may be delightful.

The pleasure of a picnic lunch may be defeated if a great many dishes and other heavy articles have to be carried. For a picnic, such foods should be chosen that very few dishes are needed in serving them.

Paper dishes are excellent not only because they are light in weight and non-breakable, but because they may be destroyed after using. Fruits such as peaches make stains on cloth which are difficult to remove. Since fruits generally form a part of a picnic lunch, and since most foods at a picnic are eaten from the fingers, *paper napkins* are especially desirable.

If foods are to be cooked at a picnic, *aluminum utensils* are convenient because aluminum is light and easy to carry.

How can hot foods be included in a picnic lunch? Just as at least one hot food should be included in a box lunch carried to school, so a hot food is desirable at a picnic. Often a beverage is served hot at a picnic. It may be carried in a vacuum bottle or vacuum jug. In the absence of a vacuum bottle, a beverage such as cocoa may be poured into an ordinary jug and the latter wrapped in several thicknesses of paper. The beverage will keep hot for several hours.

It is fun to cook one or more foods at a picnic. Usually time in home preparation is saved by cooking a food at a picnic. Then gathering fuel materials, building the fire, and cooking the foods out of doors are great fun. Finally, eating the food hot from the fire adds much to the pleasure of a picnic party.

How can a fire be built in the woods? The *spot* on which a fire is built should be selected carefully, so as to avoid danger of a forest fire.

Girls should be especially careful in building a fire outdoors. Skirts of light weight material can easily catch fire. It is safer to wear slacks if a fire is to be built at a picnic.

If food is to be cooked in a griddle or kettle, it is well to arrange stones in the form of a shallow well and build a fire inside the well. A good brisk fire should be built and the fuels allowed to burn until the blaze disappears and glowing coals remain. If a cooking utensil is used, it may be placed on top of the stones. The glowing coals will heat the utensil without depositing soot on it. Often foods are cooked by holding them directly over the glowing coals.

There are several foods which can be conveniently cooked outdoors. They are :

1. *Bacon*. — Whittle the end of a stick so as to clean it and point it. Stick a slice of bacon on the end of the stick and broil it over glowing coals.

2. *Beef Steak*. — Thin slices of meat may be cooked in the same way as bacon. Meat in steaks may be broiled over glowing coals by placing the meat on a rack.

3. *Corn on the Cob*. — For this it is necessary to have hot coals. Do not remove the husks from ears of corn. (It is not necessary to remove the silk until after cooking.) Dip the ears in water. Bury the corn in the hot ashes, completely covering each ear. Let the corn cook until it is tender.

4. *Potatoes*. — Wrap each potato (use small potatoes) in several thicknesses of paper. Moisten the paper and bury the potatoes in hot ashes. Cook until the potatoes are tender when tried with a fork.

5. *Canned Baked Beans*. — Puncture the top of the can, then place the can in the hot coals until its contents are heated thoroughly. Other canned foods may be heated in the same way.

6. *Bread*. — Stick a slice of bread on the end of a stick and toast it over glowing coals.

7. *Hot Cheese Sandwiches*. — Make cheese sandwiches by placing thin slices of cheese between unbuttered pieces of bread. In a hot griddle or frying pan cook a few pieces of bacon. When the bacon is brown, remove the slices from the griddle or pan. Place the cheese sandwiches in the hot bacon fat and brown. Turn the sandwiches so that both sides may be browned. Serve hot with bacon. Cheese sandwiches prepared in this way are sometimes called *dreamers*. Since cheese and bacon are rich in fat, dreamers are a rich food and should be eaten sparingly.

8. *Marshmallows*. — Put a marshmallow on the end of a stick and toast it over glowing coals.

Shall you drink water from streams or springs at a picnic? Water may be clear and sparkling, but unsafe to drink. Disease bacteria sometimes lurk in water. These cannot be seen with the naked eye. Water found in streams or springs often contains disease bacteria. Such water is, of course, unsafe to drink. Unless you know that water in a spring, stream, or well has been *tested by a scientist and pronounced safe for drinking*, do not taste it unless it is first boiled.

Because dangerous disease germs may exist in water, it may be necessary to carry water from home for a picnic. It is far better to do this, even though it may be inconvenient, than to

run any risks. Typhoid fever is one of the diseases which may be caused by drinking water containing certain kinds of bacteria.

If water cannot be carried from home, bring juicy fruits such as oranges. Use these fruits to quench your thirst at a picnic rather than water which you do not know to be safe.

What foods may be prepared at home for a picnic? Although it is great fun to cook a lunch in the woods, there may be times when it is better to prepare picnic foods at home and eat them in the woods. For such a lunch, sandwiches are often made. The suggestions given on page 230 can be followed in making sandwiches for a picnic quite as well as for a school lunch.

For a picnic lunch, the desserts mentioned on page 231 are suitable. Besides fresh fruit beverages and hot cocoa, milk is a wholesome picnic beverage and food. It can be carried as suggested on page 227.

Sandwiches and other picnic foods may be conveniently packed in boxes. The hints for packing foods given on page 231 should be kept in mind.

How shall you leave the picnic grounds? Considering the rights of others is one of the qualities of citizenship. The person who mutilates a public building or litters up a public park is not considering the rights of other persons. The boy or girl who leaves papers and waste food in the woods or park is not practicing citizenship. There are other persons who will want to have a picnic where he has had a good time. These persons should be considered when leaving a picnic. The boy or girl who is a worthy member of his home will not scatter paper or waste food either in his home or in his yard. He should feel the same responsibility about keeping the woods and parks clean and neat. It is a pity to spoil the beauty of woods and brooks with picnic litter.

There are at least two things a picnicker should do upon leaving a picnic: (1) see that all papers and food waste are removed or destroyed, and (2) see that all fires are put out. If a

<i>Convenience</i>		10
Napkin on top of foods	5	
Foods eaten first placed so that all foods need not be removed to get it	5	
<i>Food Selection</i>		70
Hot food	5	
Combination of moist and dry foods	5	
Milk	15	
Fruit	15	
Vegetable	15	
Flavors, varied and harmonious	15	
Total		100

SUMMARY

For a picnic

1. Choose foods requiring few dishes for serving.
2. Use paper dishes and napkins.
3. Carry drinking water unless you know there is a spring or stream on the picnic grounds which has been tested scientifically and pronounced safe.

A hot food can be served at a picnic by:

1. Carrying it in vacuum bottles or jugs
2. Wrapping paper around an ordinary jug
3. Cooking it on the picnic grounds

In building a fire at a picnic:

1. Choose a suitable spot, thus avoiding danger of a forest fire.
2. Wear suitable clothes, avoiding danger of clothing catching fire.

In leaving picnic grounds:

1. Remove or destroy all paper or waste food.
2. See that all fires are put out.

REVIEW QUESTIONS AND EXERCISES

Copy the following sentences, writing a number or a word in place of each blank.

1. — dishes are suitable for a picnic.
2. Utensils placed over glowing coals will not have — deposited on them.

3. Water in a stream or spring is unsafe to drink if it contains _____.
_____.
4. _____ may result if picnickers leave a fire burning.
5. Picnickers should consider the _____ of others.
6. Cocoa may be served hot at a picnic by carrying it in a _____ bottle.
7. When leaving picnic grounds, _____ or _____ all paper and waste food.
8. Dip ears of corn in _____ before roasting.
9. Cheese sandwiches fried in bacon fat are rich in _____.
10. Do not remove either the _____ or _____ from ears of corn before roasting.
11. Before roasting potatoes, _____ each potato in paper; _____ the paper.
12. _____ is one of the diseases which may be caused by drinking water containing disease germs.
13. If water cannot be carried from home, use _____ to quench thirst at a picnic.
14. A fire in the woods may be put out by pouring _____ on it or by piling _____ on it.

HOME WORK

1. Plan a menu for a picnic lunch containing one hot food cooked at home. Suggest a way of keeping the food hot.
2. Plan a menu in which all foods requiring special preparation will be prepared on the picnic grounds. Suggest a way of preparing each food.
3. Plan a menu containing some foods prepared at home and some to be prepared in the woods. Suggest a plan for preparing the foods at the picnic.

CHAPTER XLI

CAKES

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Some sponge-cake recipes contain no baking powder. What makes these cakes light?
2. What ingredient is lacking in sponge cake that is usually contained in other kinds of cake?
3. What is confectioner's sugar?
4. What are cup cakes?
5. How can you prevent cake from sticking to the pan in which it was baked?
6. If you follow a plain cake recipe and add chocolate for flavoring, what ingredient should be increased in quantity?
7. What is the chief difference in the ingredients of plain cake and white cake?
8. Can good cakes be made by using fat other than butter?

What are the classes of cake? Cake and ice cream are more often served at parties than any other refreshments. Cake is served not only with ice cream but with other frozen desserts. It is interesting to learn how to make cake to serve not only at a party but as a dessert for a luncheon or dinner.

There are, in general, two classes of cake. The dividing line between these cakes depends upon whether the cake ingredients contain fat. Cakes containing no fat are classed as *sponge cakes*. Cakes containing butter or other fat are known as *butter cakes*.

How are sponge cakes made light? A typical sponge cake contains only eggs, sugar, flour, salt, and flavoring. Sometimes moisture and baking powder are added when the number of eggs is reduced.

We have learned that a gas is needed to make flour mixtures light. From the solid materials sugar, flour, and salt, there is no gas formed. We can, however, beat air into eggs. Since air is a gas, the air beaten into eggs used in sponge cake makes the cake light. Because more air can be beaten into eggs when the yolks and whites are separated, we separate eggs in making sponge cake.

What kinds of sugar and flour should we use for making cake? One finds at market that granulated *sugar* varies in the size of grain. Some sugar is coarser than other sugar. It is believed that the finer-grained sugar makes cake of better quality.

We have learned that there are, in general, two kinds of flour — hard wheat or bread flour and *soft wheat or pastry flour*. *The latter is better for cake. Soft wheat or pastry flour may be purchased either in sacks or in boxes.* When soft wheat flour is packed in boxes, it is usually called *cake flour*. Such flour is made from selected wheat, very finely ground. It costs more a pound than the soft wheat flour put up in bags. Very satisfactory results may be obtained in making cake by using a good quality of soft wheat flour packed in bags.

Some housekeepers use *all-purpose* flour in making cakes with fairly good results.

When it is necessary to use *hard wheat or bread flour for cake making*, it is well to use a little *cornstarch* with the hard wheat flour. The larger amount of gluten in hard wheat flour makes a cake tough. Adding a little starch makes the cake more tender. The amount of cornstarch needed depends upon the amount of gluten in flour. Usually the following is satisfactory: *Put 1 tablespoon of cornstarch in a measuring cup, and fill up the cup with sifted hard wheat flour.* If no cornstarch is added to hard wheat flour, use only $\frac{7}{8}$ cup of hard wheat flour in place of each cup of soft wheat flour given in a cake recipe. Hard wheat flour absorbs more moisture than soft wheat.

What kinds of pans should be used for **sponge cake**? How should the pan be prepared? There is a pan with a tube in the center. (See Figure 147.) In the oven the hot air fills the tube and the cake bakes in the center about as rapidly as around the outer edges. *A tube cake pan is desirable for a sponge cake.*



FIGURE 147. CAKE PANS

A, tube cake pan. The tube is longer than the pan is deep. This makes the pan desirable for a sponge or angel cake, which should be inverted after baking. The bottom of this pan is removable.

B, clean-cut cake pan. By means of the movable metal strip, a cake can easily be loosened from the pan.

C, cake pan with a removable bottom. A cake can be taken without breaking from a pan with a removable bottom.

Sometimes one wants to serve sponge cake in square pieces. Then the cake should be baked in a square pan. Unless the pan has a removable bottom, it is well to line the bottom of the pan with paper. If a square pan is used, the paper may extend up two sides of the pan. Paper in the bottom of a cake pan makes it much easier to remove the cake without breaking it.

For a sponge cake in which no baking powder or water is used, *do not grease the pan*. If baking powder and water are used, *it is well to grease the pan*.

How is a sponge cake mixed? The following is a typical recipe for sponge cake.

SPONGE CAKE

5 egg yolks	1 cup soft wheat flour
1 cup sugar	5 egg whites
1 tablespoon lemon juice	$\frac{1}{4}$ teaspoon salt
Grated rind of $\frac{1}{2}$ lemon	

Sift some flour, then measure it. (If baking powder is used, add it to the flour.)

Into a mixing bowl, put the egg yolks. Beat them well. The yolks should become lighter in color when well beaten. Add the sugar and flavoring. (If a sponge-cake recipe calls for any other liquid, it should be added at this time.) Beat well.

Add the salt to the egg whites. Beat the whites until stiff, but not dry.

Then through a sifter, add the flour to the yolk mixture. Beat until the ingredients are well blended.

Now add the beaten whites. In order to lose as little as possible of the air beaten into the whites, fold them into the other ingredients as you did in making omelet. Turn the cake mixture into a pan.

Variation: Orange Sponge Cake. — Use 4 eggs instead of 5. Add $\frac{1}{4}$ cup orange juice and $\frac{1}{2}$ teaspoon baking powder. Bake in a tube cake pan.

How is sponge cake baked? It is possible to spoil a perfectly mixed cake by faulty baking. The temperature of the oven for sponge cakes should be lower than for butter cakes. Since the oven temperature is lower, the time is longer.

If you do not have a heat-regulated oven or a portable thermometer, the following test may be used for the temperature of your oven:

Put a piece of paper or a shallow pan containing a spoonful of white flour in the oven. Note the time. After five minutes open the oven door. The flour or paper should be light brown.

Without a thermometer, the following is helpful in determining whether the cake is baking properly:

1. Divide the time of baking given in the recipe into quarters.
2. Open the oven door only at the end of each quarter. Do not keep the door open long.
3. Observe :
 - a. End of 1st quarter — cake should have begun to rise.
 - b. End of 2d quarter — cake should have continued to rise and begun to brown.
 - c. End of 3d quarter — cake should have finished rising and browned more.
 - d. End of 4th quarter — cake should have finished browning and shrunk from the sides of pan.

In case you find your cake is not baking as it should, try to regulate the temperature. If the oven of a coal stove is too hot, you can reduce the temperature by placing a pan of hot water in the oven.

Set a heat-regulated oven at 325° F. for a cake in a tube cake pan and bake for *50 to 60 minutes*. *If you know the heat regulator on your stove is registering accurately, and your oven bakes evenly, it is better not to open the oven until the time of baking is completed.* Bake a sponge cake in a layer-cake pan at 350° F. for *40 to 45 minutes*.

What should be done with a sponge cake after it is taken from the oven? A sponge cake should be inverted while cooling. With a tube cake pan such as is shown in Figure 147, this is an easy matter. When an ordinary pan is used, invert it on a cake cooler.

Let the cake remain inverted until it is cool. Then with a spatula remove it from the pan and store it in a tightly-covered tin box.

How is an angel cake made and baked? When only egg whites are used in a cake containing no fat, the cake is called an *angel cake* or a *white sponge cake*. The method of mixing is somewhat the same as for a sponge cake. Cream of tartar is always used in an angel cake. This substance helps to make the cake lighter by making the walls of the air bubbles more firm.

ANGEL CAKE

1½ cups sugar	¼ teaspoon salt
1 cup soft wheat or pastry flour	1 teaspoon cream of tartar
1½ cups egg whites (8 large or 9 medium)	1 teaspoon flavoring extract

Both the flour and the sugar are sifted *before measuring*. Moreover, these ingredients are sifted several times *after measuring*. An easy way of sifting these materials is to use pieces of smooth paper, creased lengthwise through the center. The sugar or flour may be poured easily from one paper to another.

Sift some sugar; then measure the proper amount. Sift some flour; measure the proper amount. Pour the sugar and flour into a sifter. Sift these ingredients together 4 times.

Put the egg whites in a large mixing bowl. Add both the salt and cream of tartar to the whites. Add the cream of tartar through a sifter. Beat the whites until they are *stiff, but not dry*. Add the flavoring.

Now sift a portion of the flour and sugar into the beaten whites. Quickly fold them in. Add the remainder of the flour and sugar and fold them in. Pour the mixture into a tube cake pan about 4 inches deep and 9 inches in diameter. *Bake in a moderate oven — 325° F. — for 1 hour.*

If a smaller cake is desired, take $\frac{2}{3}$ of the recipe.

Variation. — *Chocolate angel cake* may be made by making the following changes: Use $\frac{3}{4}$ cup flour and $\frac{1}{4}$ cup cocoa, instead of 1 cup flour; 1½ cups egg whites, instead of 1½ cups; $\frac{1}{2}$ teaspoon salt instead of $\frac{1}{4}$ teaspoon.

How are butter cakes related to muffins? Here is a butter-cake recipe. Compare this recipe with the one for muffins on page 88. What ingredients does cake contain which muffins do not? Compare the quantities of ingredients in the two recipes. In what two ingredients is there an increase in quantity?

PLAIN CAKE

1 egg	2 cups soft wheat or pastry flour
1 cup milk	2 or 4 teaspoons baking powder
1 cup sugar	(See footnote, page 88.)
¼ cup butter or other fat	½ teaspoon salt
1 teaspoon flavoring	

Since the method of mixing cake given in the following is so much like the method of mixing muffins, it is called the muffin method of mixing cake.

Sift some flour, then measure the proper quantity. Add the baking powder and salt to the flour.

In a mixing bowl, beat the egg. Add the milk and sugar. Mix well.

In a small pan, melt the fat. Do not heat the fat any more than is necessary to melt it. Let it cool a few seconds, then add it to the egg mixture. Beat until the fat is well blended.

Add the flour through a sifter to the other ingredients. Add the flavoring. Beat about 1 minute. Pour into a greased cake pan.

What size of pan should be used for cake? Sometimes a cake is disappointing because it is not so high or so large as the maker expected. In such case, it may be that the proper pan was not selected for the cake recipe. One cannot expect to get a thick cake when a small amount of cake batter is put in a large pan.

In any kind of cake the quantity of flour determines the size. Since sponge cakes usually contain a larger proportion of eggs to flour than do butter cakes, in judging the size of a sponge cake it is well to consider both the quantity of flour and the number of eggs.

Layer-cake pans in common use vary in upper outside diameter from 8 to 10 inches.

A butter cake containing two cups of flour will fill two 8-inch layer-cake pans, or one 9-inch square pan.

A butter cake containing three cups of flour will fill three 8-inch layer-cake pans, or two 10-inch layer-cake pans, or one 9-inch loaf-cake (or bread) pan.

Cake is often baked in muffin pans. Cakes so baked are called *cup cakes*.

Of what materials should cake pans be made? Layer butter cakes, being thin, may be baked at a higher temperature and for a shorter time than thicker cakes. Since aluminum and tin pans (see page 588) heat quickly, these materials are desirable for layer-cake pans. Loaf cakes need to bake more slowly.

Tin or aluminum pans may be used for such cakes. However, granite pans and glass baking dishes are very satisfactory for loaf cakes.

Cake pans should always be greased for butter cakes. Unless a pan has a removable bottom or is a clean-cut pan (see Figure 147, page 550), it should have paper on the bottom. The pan should be greased after it is lined with paper.

At what temperature should butter cakes be baked? If you have neither a heat-regulated oven nor a portable oven thermometer, test the oven as follows:

Put a piece of paper or a shallow pan containing a spoonful of white flour in the oven. Note the time. After two minutes open the oven door. The flour or paper should be light brown. Follow the suggestions for checking the baking given on page 552.

With a heat-regulated oven, the following temperature and time may be used for butter cakes:

Layer cakes	375° F.	25 to 30 minutes
Cup cakes	375° F.	20 to 25 minutes
Loaf cakes	350° F.	45 to 60 minutes

What should be done with a butter cake after it is taken from the oven? Let the cake remain in the pan for about two minutes. Then carefully loosen the sides of the cake with a spatula or knife. If the pan has been lined with paper or if it has a removable bottom, the cake may be taken from the pan easily. Remove the paper or run a knife between the cake and removable bottom. Then place the cake on a cake cooler and let it stand until it is cool. When it is cold, store the cake in a tightly covered tin box.

What is the conventional method of mixing cake? For many years, housekeepers have believed that a cake should be mixed in a very different way from muffins. It has been proved that cake of finer and more even grain can be made by first creaming the fat, then adding the sugar and continuing the creaming.

The method of cake mixing in which the fat and sugar are creamed is known as the *conventional method of mixing cake*. This method requires about *twice as much time* as the muffin method.

In the conventional method of mixing cake, *all the sugar* is mixed with the shortening. Some recent experiments have shown that the volume of a cake is increased by reserving $\frac{1}{4}$ cup of sugar ¹ to fold into the beaten egg whites and mixing the remaining sugar with the shortening. This method has two advantages: (1) mixing sugar with egg whites makes the egg-white mixture more stable, and less air is lost when the mixture is folded into the other ingredients; (2) since the quantity of sugar mixed with the shortening is reduced, the mixture can be creamed more thoroughly in less time. The *revised conventional* method of mixing cake is:

Cream the fat by working it and beating it with a wooden spoon until it is very soft and pliable. Reserve $\frac{1}{4}$ cup sugar to mix with egg whites. Add the remainder of sugar to the shortening. Continue the beating until *the sugar and fat are so thoroughly blended that you cannot see the sugar grains*.

Separate the eggs and beat each part separately. (Let the egg whites stand at room temperature before beating so they will beat better.) Add the beaten egg yolks to the creamed sugar and fat. Beat until well blended.

Mix the flour and other dry ingredients. Sift a part of this mixture into the sugar mixture. Then add some milk. Continue adding alternately dry ingredients and moisture until all are added. Add the flavoring. Beat after each addition until all ingredients are well blended.

Beat the egg whites stiff, but not dry. Add the reserved sugar. Beat until blended. Fold this into the flour mixture. Pour at once into greased pans, and bake.

How can different kinds of cake be made? If you can make a plain, standard, butter cake well, there is no reason why you cannot make many other kinds of cakes.

¹ One-fourth cup of sugar reserved for beaten egg whites is satisfactory for cakes containing no more than 4 or 5 eggs. If a recipe requires more eggs, reserve approximately 2 tablespoons sugar for each egg white.

Here are recipes for a standard cake and cakes based on the standard cake.

STANDARD CAKE

$\frac{1}{3}$ cup shortening	$2\frac{1}{4}$ cups sifted cake flour ¹
$1\frac{1}{4}$ cups sugar	2 or 3 teaspoons baking powder ²
2 eggs	$\frac{1}{2}$ teaspoon salt
1 cup milk	$1\frac{1}{2}$ teaspoons vanilla extract

WHITE CAKE

$\frac{1}{2}$ cup butter	$\frac{1}{2}$ teaspoon salt
$1\frac{1}{4}$ cups sugar	1 teaspoon vanilla extract
$\frac{7}{8}$ cup water	$\frac{1}{2}$ teaspoon almond extract
$2\frac{1}{4}$ cups sifted cake flour ¹	4 egg whites
2 or $2\frac{1}{2}$ teaspoons baking powder ²	$\frac{1}{2}$ teaspoon cream of tartar

White cake is made by using only egg whites instead of whole eggs. The other ingredients are mixed in the same way as when whole eggs are used. The cream of tartar should be beaten with the egg whites. After beating the latter, add $\frac{1}{4}$ cup sugar reserved for the whites. The stiffly beaten whites are always folded into the mixture *after* all the other ingredients are mixed.

SPICE CAKE

$\frac{1}{3}$ cup shortening	2 or 3 teaspoons baking powder ²
$1\frac{1}{4}$ cups sugar, white sugar <i>or</i>	$\frac{1}{2}$ teaspoon salt
$1\frac{1}{2}$ cups brown sugar	$\frac{3}{4}$ teaspoon cinnamon
2 eggs	$\frac{3}{4}$ teaspoon nutmeg
1 cup milk	$\frac{1}{4}$ teaspoon cloves
$2\frac{1}{4}$ cups sifted cake flour ¹	

CHOCOLATE CAKE

$\frac{1}{3}$ or $\frac{1}{2}$ cup shortening	$2\frac{1}{4}$ cups sifted cake flour ¹
$1\frac{1}{2}$ cups sugar	2 or 3 teaspoons baking powder ²
2 to 4 eggs	$\frac{1}{2}$ teaspoon baking soda ³
$\frac{1}{2}$ cup sour milk	$\frac{3}{4}$ teaspoon salt
3 ounces chocolate or $\frac{1}{2}$ cup cocoa	$1\frac{1}{2}$ teaspoons vanilla extract
$\frac{1}{2}$ cup water	

¹ Or 2 cups all-purpose flour.

² See footnote, page 88.

³ Baking soda is used because the cake contains both sour milk and chocolate.

Cook the chocolate or cocoa and water into a smooth paste. Add this paste to the other ingredients after mixing the egg yolks, milk, sugar, and fat. In using chocolate, add the smaller amount of shortening.

Sweet milk may be used, but sour milk makes a more tender cake.

(Why is more sugar and less milk used in chocolate cake than in the standard cake?)

Should butter be used in making cake? Butter is the most expensive of the solid fats. Can we economize in making cake and use a cheaper fat? The answer to this question depends upon the other ingredients used in the cake. If a cake is strongly flavored with molasses or spices, a fat other than butter may be used. The flavoring material covers up the taste of the fat. But if a cake contains no flavoring material other than vanilla or other extract of delicate taste, butter will help to make the cake taste good. Butter gives white cake an especially good flavor.

There are, however, some vegetable oils and butter or lard substitutes that have no flavor. Such fats add nothing to the taste of cake, but do not detract from its flavor. A combination of butter and a tasteless fat can often be used. Such a mixture gives cake a good taste, and costs less than butter alone.

What are the causes of some cake failures? When you bake a good cake, do you give the credit to *good luck*? When you have a cake failure, do you lay the blame upon *bad luck*? There are no such things as good and bad luck in making cake. If your cake is heavy or coarse, or has an uneven surface with a crack in it, there is a reason for the imperfection. If you follow a reliable recipe, use the right kind of materials, measure them accurately, mix them carefully, and bake them at the proper temperature, you are bound to make a good cake.

A good cake is either level on the top or slightly convex. It is evenly browned. The score card on page 559 will help you to know what the inside or *crumb* of a cake should be.

Perhaps it will help you to know what are the causes of some cake failures.

1. *Outside appearance:*

- a. Cracked crust — too hot an oven or too much flour
- b. Hard and coarse crust — too much sugar
- c. Uneven thickness — oven of uneven temperature or cake placed too close to the side of the oven.

2. *Inside or crumb of cake:*

- a. Coarse grain — too much moisture or sugar or baking powder
- b. Dry — too much flour or too slow an oven
- c. Tough — too little fat
- d. Heavy — too little baking powder or falling during baking or after removing from oven. Falling of cake may be due to
 - (1) Too much fat or sugar or baking powder
 - (2) Too little flour
 - (3) Jarring during baking

How is a cake scored? Cake may be judged with the aid of a score card.

SCORE CARD FOR CAKE

	PERFECT SCORE
Appearance — shape, crust, or frosting	15
Crumb :	
Light	15
Grain (fine)	15
Tender	10
Moist	10
Flavor	<u>35</u>
Total	100

How is frosting made? There is a kind of sugar called *confectioner's* or *4X* sugar. It is the finest-grained sugar that is prepared. By moistening this sugar with water, milk, fruit juice, or egg, and adding flavoring, you may make a frosting. In making uncooked frosting with confectioner's sugar, care should be taken not to add too much moisture. A very little liquid moistens a good deal of sugar. Sometimes butter is added to this kind of frosting to improve the flavor.

UNCOOKED FROSTING

2 tablespoons butter	1 tablespoon milk or 1 egg white,
Confectioner's sugar, about 1 cup	unbeaten
$\frac{1}{8}$ teaspoon salt	1 teaspoon vanilla

Cream the butter, add about $\frac{1}{4}$ cup of sugar, and continue creaming.

Then add the remaining ingredients and mix thoroughly. Add enough sugar to make the frosting stiff enough to hold its shape when it is spread on the cake.

Variation: Cocoa Frosting. — Mix 3 tablespoons cocoa with the same amount of water. Cook over a low flame until a smooth paste is formed. Add 1 tablespoon butter. Stir until the butter is melted. Then add $\frac{1}{8}$ teaspoon salt, $\frac{1}{2}$ teaspoon vanilla, and enough confectioner's sugar to make the frosting of proper stiffness.

Cooked frosting is more difficult to make than uncooked because the frosting may be spoiled by overcooking or undercooking. It is important to cook frosting for the proper length of time. Perhaps the easiest cooked frosting to make is a kind known as 7-minute frosting. This frosting is so named because it is cooked for 7 minutes. The recipe follows:

7-MINUTE FROSTING

3 tablespoons cold water	1 egg white, unbeaten
$\frac{1}{8}$ teaspoon cream of tartar	$\frac{3}{4}$ cup granulated sugar
Speck of salt	1 teaspoon extract

Note: This quantity makes only enough frosting to cover the top of a cake. If you want to put frosting between the layers also, double the quantity.

A double boiler is needed in making this frosting. Before adding any of the ingredients to the top part of the double boiler, put hot water in the lower part. Put the top part over the hot water. Set the double boiler over a flame and heat it until the water in the lower part boils. Then put all ingredients except vanilla in the upper part of the double boiler. Immediately begin to beat the mixture with a wheel egg beater. Continue to beat it for 7 minutes.

Lift the top part of the double boiler out of the lower part. Pour the hot water out of the lower part and add cold water. Return the

upper part of the double boiler to the lower part. Let the frosting cool for about 5 minutes.

Add the extract. Beat it into the sugar mixture. Spread the frosting on the cake.

How is chocolate filling made? A chocolate cake made in layers, with a chocolate custard spread between the layers and 7-minute frosting on top of the cake, is delicious. The recipe for chocolate custard follows:

CHOCOLATE CUSTARD

1 square chocolate or 3 tablespoons cocoa	2 tablespoons flour
1 egg yolk	$\frac{1}{4}$ teaspoon salt
$\frac{1}{2}$ cup sugar	1 cup milk
1 tablespoon cornstarch	1 tablespoon butter
	$\frac{1}{2}$ teaspoon vanilla

Cut the chocolate into bits. Put in the top part of a double boiler. Heat the chocolate over hot water until it melts.

In a mixing bowl, beat the egg yolk. Add the sugar, cornstarch, flour, salt, and milk. Mix well.

Add this mixture to the chocolate. Stir and cook over hot water until the mixture thickens. Continue to cook for 15 minutes longer, stirring only occasionally. Then add the butter. Stir until the butter is melted. Set aside to cool.

When the custard cools, add the vanilla. Then it is ready to use.

If cocoa is used instead of chocolate, mix the cocoa with the cornstarch, flour, and other ingredients.

SUMMARY

Classes of cakes:

1. Sponge cakes (contain no fat)
2. Butter cakes (contain fat)

Mixing sponge cakes:

1. Measure flour (and baking powder, if used)
2. Separate eggs, beat yolks
3. Add sugar, flavoring (and moisture, if used) to eggs
4. Add salt to egg whites and beat stiff.
5. Sift flour mixture into egg-yolk mixture
6. Fold beaten egg whites into egg-yolk mixture

Mixing butter cakes:

1. Muffin method

- a. Measure flour, baking powder, and salt.
- b. Beat egg, add moisture and sugar.
- c. Melt fat, add to egg mixture.
- d. Sift flour mixture into egg mixture.
- e. Add flavoring. Beat until ingredients are well mixed.

2. Modified conventional method

- a. Cream fat. Reserve $\frac{1}{4}$ cup sugar to mix with egg whites. Add remainder of sugar to the fat.
- b. Separate egg. Beat egg yolks. Add to sugar mixture.
- c. Mix flour, baking powder, and salt. Add dry ingredients and milk alternately to sugar mixture. Add flavoring. Beat well.
- d. Beat egg whites until stiff. Add $\frac{1}{4}$ cup sugar. Fold into other ingredients.

Temperature and time for baking cakes:

1. Sponge

- a. Loaf or thick cake, 325° F., 1 hour
- b. Layer or thin cake, 350° F., 40 to 45 minutes

2. Butter

- a. Loaf, 350° F., 45 to 60 minutes
- b. Layer, 375° F., 25 to 30 minutes
- c. Cup, 375° F., 20 to 25 minutes

REVIEW QUESTIONS AND EXERCISES

Some of the following statements are true and some are false. Read each statement very carefully and decide whether it is true or false. On a piece of paper or in your notebook, list the numbers corresponding to the statements. After each number, write the word True or the word False.

1. All granulated sugars have about the same fineness of grain.
2. All cakes are leavened with baking powder.
3. Egg whites used in making cake should be beaten until stiff and dry.
4. A crack in the crust of a cake may be due to too hot an oven.
5. In making cakes containing butter, the butter should always be creamed before it is added to other ingredients.
6. Most layer cakes containing butter should be baked at 375° F.

7. When a plain-cake recipe is modified by adding chocolate, the flavor of the cake will be improved by increasing the quantity of sugar.
8. Aluminum cake pans heat up quickly.
9. Too much moisture makes a cake coarse.
10. A cake containing a very small quantity of fat is usually tender.
11. All frosting should be cooked.
12. Confectioner's sugar is finer than powdered sugar.
13. Too much fat may cause a cake to fall.
14. Baking powder is never used in sponge cakes.
15. Heat fat to a very high temperature and have it very hot when adding it to other ingredients of a cake.
16. If hard wheat is substituted for soft wheat in a cake recipe, use $\frac{7}{8}$ cup of hard wheat.
17. Cake pans should be filled full of batter.
18. The pan in which an angel cake is baked should be greased.
19. Too much flour in a cake may cause a cracked crust.
20. Whole eggs are used in making white cake.

HOME WORK

1. Make one or more cakes at home. Be sure to make the orange sponge cake. You will be delighted with it.
2. Grade the cake, using the score on page 559. (If you desire school credit for the cake, take the score to school, signed as suggested on page 30.)

CHAPTER XLII

FROZEN DESSERTS

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Why is salt mixed with ice in freezing ice cream?
2. How much salt should be mixed with ice?
3. Is it possible to make good ice cream without beating or stirring the mixture as it freezes?
4. Why are the buckets of ice-cream freezers usually made of wood rather than of metal?
5. Why should the can of an ice-cream freezer be scalded before it is used?
6. A quart of ice cream will make eight medium servings. How much ice cream should you buy to serve twelve persons?
7. What is an easy way to crush a piece of ice for making ice cream?

What care should be taken in buying ice cream? At picnics, at parties, at tea rooms, at school cafeterias, at hotels, at restaurants, at drug stores, and at lunch counters along auto highways, ice cream is a favorite food. Not only in public eating places, but in the home, ice cream is popular.

It is fortunate that this favorite dessert is made usually of wholesome materials. It is far better to buy a cone filled with fresh, wholesome ice cream than a bottle of pop or other drink not made of fresh fruit juices. Fresh ice cream of good quality is a wholesome sweet.

"Is the ice cream fresh?" should be asked, if possible, when buying factory-made ice cream. When ice cream becomes old, substances may form in it which are unwholesome and even dangerous. It is unwise to eat old ice cream.

Ice cream should also be kept clean. The can should be clean as well as the utensils needed in dipping or serving it. If the

place in which ice cream is sold is not kept neat and clean, it is probably not safe to eat it. Buy ice cream from a clean store or counter.

Should we buy or make ice cream? The question sometimes arises whether it is cheaper to buy factory-made ice cream or to make it in the home. In counting up the cost of materials, one often finds that the materials used for making ice cream cost as much as, if not more than, the factory product. But if one compares the quality of the two products, the homemade is often the better. Ice cream made of real cream in the home surely tastes fine!

Whether ice cream is made in the home or bought depends upon several things which will have to be decided by the individual. The work of making ice cream in the home may be lessened if one has the necessary tools. The iceless refrigerator may also make the work of freezing ice cream easier. Even if factory ice cream is usually purchased, there are occasions when one wishes to make ice cream. Something about the tools and utensils needed for making ice cream, as well as directions for making it, follow.

What is a crank ice-cream freezer? Study Figure 148 to learn the parts of the kind of ice-cream freezer most commonly used. Because the dasher or beater is turned by a crank, this is called a *crank* ice-cream freezer.

Mixtures frozen in this kind of freezer usually become smooth and fine-grained. Because air is beaten into them as they freeze, they become light and increase in volume.

Why is salt mixed with ice in freezing mixtures? This question can be answered after trying the following:

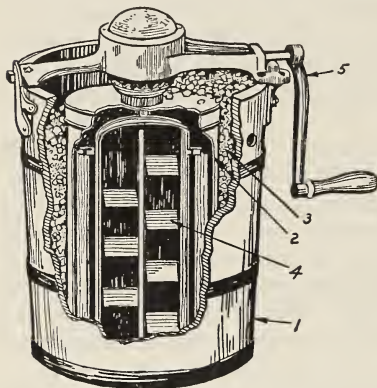
Experiment 36: *To show what salt does to ice (Class Experiment).*

(a) Put a piece of ice in a canvas or burlap bag. With a wooden mallet, crush the ice. Measure 2 cups of the crushed ice. Put 1 cup of ice into each of 2 bowls. To one bowl add 2 tablespoons rock salt and mix thoroughly. Insert a thermometer into the center of the ice in

each bowl. After a few minutes note the temperature of the contents of each bowl. Which is the colder?

(b) Has the ice in one bowl melted more than in the other bowl? Besides lowering the temperature, what does the salt do to the ice?

This experiment shows you that it is better to use a mixture of ice and salt rather than ice alone because it becomes colder.



New York State College of Agriculture

FIGURE 148. PARTS OF AN ICE-CREAM FREEZER

1. Bucket, usually made of wood.
2. Metal can for holding the mixture to be frozen.
3. Ice and salt mixture.
4. Dasher which beats the mixture while it is freezing.
5. Crank by which dasher is turned.

The experiment shows also that when salt is mixed with ice, the ice melts more quickly than when there is no salt. One might ask: Why add the salt when it makes the ice melt faster? An explanation is needed to answer this question. It takes heat to melt ice. As ice melts, heat is taken from the thing in contact with it. Since the can of the freezer is in contact with the ice, the ice, in melting, draws heat from the can. The can gets very cold. The cold can in turn

cools the mixture on its inner side. Finally the dessert is frozen.

Thus we see that the ice *must melt* in order to cool the mixture inside the can so that it will freeze. *When ice outside the can melts, freezing inside the can takes place.*

How shall the freezer and ice mixture be made ready for freezing? The can of the freezer must be clean. It must not

merely look clean. It must be free from odors and bacteria. The seams in a can make good lodging places for bacteria. To make sure the can is freed of bacteria, pour boiling water into the can, just before using. If the freezer is of the crank type, the dasher as well as the can needs scalding. Place the dasher inside the can before scalding. Cover the can. Let the boiling water stand in the can for a few minutes. Pour out the water. Let the can stand uncovered to cool.

Adjust the can carefully in the bucket. Put the dasher in place. Pour the mixture to be frozen into the can. Cover the can and adjust the crank. While the can is being scalded or is cooling, the ice should be prepared. Place a piece of ice in a strong bag. Crush the ice by pounding it with a wooden mallet. Measure it with a dipper or a saucepan. *Measure one eighth as much salt as ice.* Use rock salt. Add the salt to the ice and mix thoroughly.

Pour the ice and salt around the can of the freezer. Use enough of the ice mixture so that it comes as high around the can as the level of the mixture.

How are desserts frozen? Do not bend over when turning the crank of an ice-cream freezer. Place the latter on a bench or stool. A freezer may also be placed in a sink if the sink is first protected with several thicknesses of paper. Turn the crank steadily. Do not open the can of the freezer until the crank is hard to move. The mixture is then stiffly frozen.

In the side of the bucket of a crank freezer, there is a hole. This hole should be corked during the freezing. The salt water should not be drained away, unless the level of the water gets so high that there is danger of its getting into the can. *The water level should not be allowed to reach the rim of the cover.*

It is possible to freeze a mixture made of whipped cream without beating the cream mixture during freezing. A frozen mixture made of whipped cream is called a *mousse*. A *mousse* is usually placed in a mold and surrounded by salt and ice. For

packing this kind of dessert, use *3 parts of ice to 1 part of rock salt*. Let the mold remain in the ice and salt for 3 or 4 hours. Drain several times; add more ice and salt.

A mousse may be frozen also by placing it in an iceless refrigerator. In this case the mold containing the mixture does not need to be packed in ice and salt.

How are frozen desserts packed? When the mixture is frozen stiffly, remove the crank. Before uncovering the can, wipe the cover and upper part of the can so that no salt or salt water will get inside the can. Uncover the can and remove the dasher. Place a piece of paraffin paper over the top of the can and replace the metal cover. Insert a cork in the hole in the top of the cover. Remove the cork from the bucket and let the salt water drain away. More ice and salt will be needed around the can so as to keep the dessert in a frozen condition. If the dessert is to stand not longer than an hour before serving, use for packing a mixture of *4 parts of ice to 1 of salt for packing*. If it is to stand more than 1 hour, use the same mixture for packing as for freezing, *8 parts of ice to 1 of salt*.

Cover the freezer with a piece of carpet or burlap, or a number of thicknesses of paper. Set aside in as cool a place as possible.

The flavor of frozen desserts is improved if they are allowed to stand for some time after freezing. This process is called *ripening*.

How should the freezer be cared for after use? Molds grow on wet wood if air is kept from it. If, after washing the can and dasher of a freezer, the dasher is at once placed in the can and the can covered, molds are likely to grow on the wood of the dasher. To prevent the wood from mildewing, let it *dry out thoroughly* before closing the lid of the can.

If the mixture of ice and salt is allowed to stand in the outer container until the ice melts, the salt will settle to the bottom. The water may then be poured off the salt and the salt saved.

The salt should be removed from the container and the container rinsed out.

How is an ice-cream mixture prepared? For a quart of plain custard (not frozen) only $\frac{1}{2}$ cup of sugar is needed. For a quart of plain ice cream, 1 cup of sugar is needed. Why is this? When a frozen dessert is eaten, the mouth and tongue become cold. Because of this, the sense of taste is not quite so acute as when a warmer food is eaten. Since ice cream is a cold food, we find it necessary to make it sweeter than desserts which are served less cold.

A plain ice cream consists only of cream, sugar, and flavoring. The sugar should be dissolved before the cream is frozen. A recipe is:

PLAIN VANILLA ICE CREAM

1 quart cream	1 cup sugar
1 tablespoon vanilla	

In a double boiler, heat half the cream. Add the sugar. Stir until the sugar is dissolved. Add the remainder of the cream. Set aside until it is entirely cold. Then add the vanilla. Freeze as directed on page 567.

CHOCOLATE ICE CREAM

1 quart cream	$\frac{1}{3}$ cup water
1 cup sugar	$\frac{1}{8}$ teaspoon salt
2 ounces chocolate cut into bits	1 teaspoon vanilla

The chocolate is prepared as directed in the recipe for the chocolate dessert on page 315. The flavor is better if a little salt is added. Less vanilla is used in chocolate ice cream than in plain ice cream.

Heat half the cream in a double boiler and add the sugar as directed for the plain dessert.

In a small pan make a paste of the chocolate and water. Add this to the hot cream mixture. Stir until the mixture is blended. Add the remainder of the cream and the salt. Set aside until it is entirely cold. Add the vanilla. Freeze as directed on page 567.

How is a fruit ice cream made? You have learned that about five-sixths of fresh fruit is water. If whole berries or pieces of

peaches or other fruit are frozen with cream, the water in the fruit will freeze. Bits of ice will form in the fruit. To avoid forming small pieces of ice, the fruit must be crushed well before it is added to the cream. Delicious ice creams may be made from fresh strawberries, red raspberries, and peaches, as well as from other fruits. Either fresh or canned peaches may be used. A recipe in which either crushed fruit or fruit juice is used follows:

FRUIT ICE CREAM

**3 cups crushed fruit or 2 cups fruit
juice**

**2 cups sugar
1 quart cream**

If whole fruit is used, crush it thoroughly with a potato masher.

Add the sugar to the crushed fruit or fruit juice. Let it stand until the sugar is dissolved. Stir occasionally. When the sugar is dissolved, add the cream. Stir to mix. Freeze as directed on page 567.

Variation: Water Ice. — Substitute water for cream. With many fruits, a small amount of lemon juice improves the flavor. For this recipe, use 2 tablespoons lemon juice.

Should milk be used with fruit juice? There is a dessert known as *milk sherbet* which has been a general favorite for many years. It is made of milk and sugar flavored with lemon juice or with a mixture of lemon and orange juices. Do you realize what a vitamin-rich food this dessert is? The following shows what a good combination milk and lemon or orange juice are from the standpoint of vitamins.

	VITAMINS			
	A	B	C	G (See p. 600)
Whole fresh milk . . .	+++	++	+	+++
Lemon juice	+	++	+++	++
Orange juice	+	++	+++	++

And yet there is a notion, which has persisted for many years, that some dire digestive calamity will happen if a person uses

milk and lemon or orange in the same meal. In the gastric juice of the stomach there is an acid. Milk then must come in contact with acid when it is being digested. Babies and young children who live mostly on milk are often fed orange juice. One should not hesitate to drink milk and eat oranges or foods flavored with lemon juice at the same meal.

The recipe for this nourishing dessert is :

LEMON-MILK SHERBET

1 quart milk 1½ cups sugar
3 lemons

Heat half the milk in a double boiler. Add the sugar. Stir until the sugar is dissolved. Then remove from the stove. Add the remainder of the milk. Set the mixture aside in a cool place until it is very cold.

Press the juice from the lemons. Remove the seeds. When the milk-sugar mixture is very cold, add the lemon juice. Freeze at once as directed on page 567.

Variation: Orange-Lemon-Milk Sherbet. — For this dessert, use the following ingredients :

1 quart milk 2 lemons
1¾ cups sugar 4 oranges

Prepare as directed for lemon-milk sherbet, adding orange juice to the lemon juice.

Suggestions for freezing mixtures in a refrigerator. Since desserts frozen in a mechanical refrigerator are not stirred during freezing, large ice crystals may form. To avoid this, use :

1. Whipping cream beaten thick but not stiff. Table cream (25%) chilled and 24 hours old may be used if the mixture is served soon after freezing. Otherwise, 36% cream should be used.
2. Sweetened condensed milk or evaporated milk. (The latter may be whipped.)
3. Gelatin, cornstarch, flour or arrowroot, cracker crumbs or eggs in the mixture.

If the temperature of the freezer can be regulated, set the temperature at the highest point a few minutes before placing the tray in the freezing compartment.

VANILLA ICE CREAM (made with condensed milk)

$\frac{2}{3}$ cup ($\frac{1}{2}$ can) sweetened condensed milk	$\frac{1}{2}$ cup water
$\frac{1}{2}$ pint whipping cream	$1\frac{1}{2}$ teaspoons vanilla

Mix the milk, water, and vanilla. Chill in the refrigerator.

Whip the cream. Fold it into the chilled mixture. Pour into the freezing tray. Place the latter in the freezing compartment.

When partly frozen, scrape the mixture into a chilled bowl. Beat. Return to the tray and freeze. Yield: 6 servings.

GRAHAM CRACKER ICE CREAM

$\frac{1}{2}$ cup sugar	1 cup graham cracker crumbs
1 pint cream	1 teaspoon vanilla

Mix these ingredients. Pour into a tray and place in the freezing compartment. When partly frozen, scrape into a chilled mixing bowl. Beat. Return to the tray and freeze. Yield: 6 servings.

SUMMARY

Desserts may be frozen:

1. In a freezer which stirs the mixture as it freezes.
2. Without continuous stirring by surrounding with a mixture of ice and salt; or in the freezing compartment of a mechanical refrigerator. If mixtures are not stirred during freezing, special ingredients are used to prevent large ice crystals from forming.

REVIEW QUESTIONS AND PROBLEMS

1. Why is more sugar used in frozen desserts than in other desserts?
2. Why should ice used in freezing a mixture melt while the mixture is being stirred?
3. Why should the dasher of an ice-cream freezer be allowed to dry before it is stored in a covered can?
4. Why is lemon-milk sherbet a wholesome dessert?
5. Why put whipped cream in a mixture frozen without stirring?

HOME WORK

1. If you have an ice-cream freezer or an iceless refrigerator, make a frozen dessert. For school credit, take a report to your teacher. (See page 30.)
2. Calculate how many more calories fruit ice cream will yield than water ice. (See the recipe on page 570.)

CHAPTER XLIII

PARTIES AT SCHOOL AND AT HOME

Can you answer these questions? If not, look for the answers as you study this chapter.

1. Should a girl rise when being introduced to a boy?
2. In introducing one person to another what can you say to make it easier for the two persons to talk to each other?
3. In introducing two persons, does it make any difference which name is mentioned first?
4. Should one shake hands or merely bow during an introduction?
5. How is custard put inside a cream puff?
6. How should one eat a cream puff?
7. What are some refreshments for a school party that are both tasty and wholesome?

What should you do when invited to a party? If you are invited to a party, the one inviting you pays you a compliment. If the invitation is a verbal one, your reply should indicate that you appreciate the invitation. "I shall be very glad to come to your party" would be a suitable reply to make in case you can attend the party. If it is impossible for you to go, a regret should be sincerely expressed in some such way as "I am so sorry that it will be impossible for me to go to your party. I am going to visit my aunt over the week-end and shall not be in town."

While many invitations are given in person or over the telephone, a written invitation gives the one receiving it more time to decide whether it can be accepted.

A written invitation to an informal party is merely a note inviting a person in a cordial way to attend a party or other social affair. It may read:

Dear Mary :

On next Saturday evening, I am planning to have a party in honor of my cousin who will be at our home for a visit. Will you join the party at eight o'clock?

Sincerely yours,
Elizabeth Brown

2500 Portland Avenue
May 5

A written invitation should be accepted by a note written in the same style as the invitation. A suitable reply to the foregoing would be :

Dear Elizabeth :

Thank you for the invitation for Saturday evening. I shall be very glad to go to your party and meet your cousin.

Very sincerely yours,
Mary Compton

1515 Abbington Road
May 6

All invitations and replies should be written by hand (not typed) in ink. A reply to an invitation should be made promptly.

An important thing to remember is to give, accept, or decline an invitation *sincerely*.

What should you say when you arrive at a party ? When you arrive at the party, the one giving the party, that is, the host or hostess, usually says that he is glad to see you and shakes hands with you. You in turn should say that you are glad to be at the party or in some such way express your pleasure.

If a party is given at school, probably one or more teachers of the school are present acting as chaperon or sponsor. You should shake hands with the sponsor when you enter the room in which the party is given. Sometimes some of the pupils have arranged the party. You should also say "How do you do?" to those members of the school responsible for the party.

How is one person introduced to another? It very often happens that not all guests at a party know one another. The

host or hostess should be very careful to see that each person is introduced to every one he has not met at a small party. One should know both how to introduce a person and what to say on being introduced.

In introducing one person to another, it makes a difference whether you say, "Mrs. Gray, this is Dorothy Alexander," or, "Dorothy, this is Mrs. Gray." If Mrs. Gray is the older person, Dorothy should be introduced or presented to Mrs. Gray. In this case the former is the correct introduction. The rules to follow are these:

1. Present a younger person to an older person.
2. Present a boy to a girl or a man to a woman.
3. Present a less prominent person to one of greater importance.

The best thing to say in introducing one to another is, "Mother, this is Eleanor Jones," or, "Miss Perkins, may I present Mr. Hopkins?" or, "Miss Adams, Miss Ward."

The person to whom another is presented makes the next move. He or she may bow cordially or offer his hand to the one being presented and say, "How do you do?" not, "I am glad to meet you." The one correct response to an introduction is, "How do you do?"

The person being introduced follows the lead of the one to whom he is being introduced. If a bow has been made, the bow should be returned. If a hand is extended, the hand should be grasped. The person being introduced may say nothing or may repeat the name of the other person, or in addition to repeating the name say, "How do you do?"

The question may arise as to when you shall shake hands and when you shall merely bow on introduction. It is customary for (1) a boy or a man to shake hands with another boy or man; (2) a girl or a woman to bow to another girl or woman or to a boy or man on formal occasions; to shake hands at less formal occasions. Since a boy or man is presented to a girl or woman,

the latter extends her hand first in an introduction, in case she desires to shake hands.

Shall persons being introduced rise during the introduction? (1) The hostess or the one doing the introducing rises. (2) A boy or a man rises. (3) A girl or a woman remains seated when a boy or a man or another girl or woman is being introduced to her unless she is a hostess; she may rise when being introduced to an older woman or to a much older man.

A person who introduces others gracefully often says something after the introduction to let the persons being introduced know something more about each other. A girl presenting one of her school friends to her mother might say, "Mother, you will remember that I have often spoken of Mary. We are in the same classes at school."

What courtesies are demanded of a guest at a party? One giving a party tries to make the guests have a good time. It seems only common courtesy for the ones accepting the invitation to help the hostess in every way possible to make the party a success. If games are planned, play them heartily, and thus add to the success of the party. Do not sit in the corner as if you had no interest in the party.

When refreshments are served, eat them if possible. The hostess has spent time or money or both in her preparations. One would appear to have little appreciation of her efforts if the food were left untasted. Eat with the same care that you would at the table. Suggestions for eating sandwiches, salads, ice cream, and cake, and for drinking beverages (pages 130, 133, and 134) apply to foods served at a party as well as to a meal served on the dining table.

What should you say when you leave a party? When it is time to leave a party, you should say "Good-by" to the sponsor of a school party or the hostess of a home party. If the party is in a home, it is courteous to say "Good-by" to the mother or parents of your hostess.

When leaving a party you should not merely say "Good-by" or "Good night" but add at least a "Thank you" to let your sponsor or hostess know you appreciate her hospitality. To the sponsor of a school party, one might say, "Good night, Miss Adams. Thank you for helping us to have such a good time." To a friend having a party at her home, the following might be appropriate: "Good-by, Alice, I have had a very good time, as I always do in your home." Whatever you say, say it sincerely. If you say merely, "Good-by, Mary. Thank you," put a sincere ring in your voice. The *way* you say "Good-by" or "How do you do?" may count more than *what* you say.

What shall you serve for refreshments? Refreshments for a party are usually served in the afternoon or evening — not at meal time. The amount of food should, therefore, be less than that served at a meal. Simple refreshments — not more than one course — are best for most parties. It is well also to use wholesome foods for refreshments.

For a party at school or at home, the following may be suggestive:

Cookies (page 444) and cocoa (page 69)

Cocoa with marshmallows or whipped cream (page 69) and wafers

Apples and gingerbread (page 321)

Pop-corn balls (page 578) and cocoa (page 69)

Fruit cup (page 313) and cake (pages 551-558)

Fruit salad (page 294), wafers, and cocoa (page 69)

Ice cream (page 569) and cake (pages 551-558)

Fruit punch (page 578) and assorted cakes (page 444)

Sandwiches (page 230) and cocoa (page 69)

Gelatin dessert (page 439) and cakes (page 444) or wafers

Cream puffs (page 579) and cocoa (page 69)

How are pop-corn balls made? Who does not like to pop corn? It is fun to hear the kernels pop and to see them hop around. They act as if they were having a merry time. It is disappointing when some of the kernels do not pop. Let us learn how to make almost every kernel burst open.

Pop corn must be dry before it will pop. However, just before popping, the kernels should be moistened. To do this, put the corn in a strainer and let the water run through it. Drain.

For popping corn a wire popper, a frying pan, or a new kind of popper having a crank handle may be used. Some of the latter kind are heated by electricity. No matter what kind of utensil is used, the pop corn must be kept moving while heating. If a frying pan or wire popper is used, shake it constantly. If one of the new kind is used, turn the crank while heating.

In order to have the corn tender, heat it gradually and evenly. This is very important. If the corn is being heated over a gas burner, turn the burner low. Use only enough corn in the popper at one time to cover the bottom of it. One cup of unpopped corn will make about $3\frac{1}{2}$ quarts of popped corn.

POP-CORN BALLS

3 quarts popped corn	1 cup sugar
1 cup corn sirup	$\frac{1}{4}$ teaspoon salt
$\frac{1}{4}$ cup butter	

Pick over the corn to remove unpopped kernels.

Put the sirup, sugar, and salt in a saucepan. Stir to mix it. Heat the mixture without stirring until the sirup is very thick. Test it with a thermometer. The sirup should reach 270° F. If you do not have a thermometer, test the sirup by dropping a small quantity into cold water. If the sirup becomes brittle, it is cooked enough. Add the butter and stir to mix.

Put the corn in a large bowl so it can be stirred while the sirup is being poured over it. Add the sirup. Let the sweetened corn stand about a minute. Then dip the hands in cold water. Shake the water off the hands and press some corn into a ball. Repeat.

FRUIT PUNCH

1 can (No. 2) shredded pineapple	$3\frac{1}{2}$ cups sugar
1 cup water	2 cups water
1 tablespoon tea leaves	3 oranges, juice and grated rind
2 cups boiling water	12 lemons, juice
4 quarts cold water	

Put the pineapple and 1 cup of water in a saucepan. Cover and boil gently for 15 minutes. Set aside to cool.

Add the tea leaves to 2 cups of boiling water. Cover. Let stand 5 minutes. Strain the leaves out of the water. Set aside to cool.

Put the sugar and 2 cups of water in a saucepan. Add the grated orange rind. Let the mixture boil gently for about 10 minutes. Strain the rind from the sirup. Set aside to cool.

Press the juice from the fruit. When the cooked mixtures are cool, mix them together and add the fruit juices and 4 quarts cold water. Put a large piece of ice in the mixture. Let it stand until it is very cold. Serve cold.

If desired, fruit punch may be garnished with fresh strawberries, or cherries, or sprigs of fresh mint. Yield: 2 gallons.

How are cream puffs made? Does the making of cream puffs seem a mystery to you? If flour, water, fat, and egg are mixed and baked in a certain way, the dough puffs up during baking and becomes hollow. If the dough is well baked, it not only becomes hollow but dry and firm. In the cavity of the shell thus formed, custard may be placed. Let us learn how to make this interesting and tasty dessert.

CREAM PUFFS

$\frac{1}{3}$ cup corn oil or cottonseed oil, or

$\frac{1}{2}$ cup ($\frac{1}{4}$ pound) butter

1 cup water

$\frac{1}{2}$ teaspoon salt ¹

1 cup flour

4 eggs

In a saucepan, put the oil or butter and water. Heat until the water boils. Take from the stove.

Add the salt to the water. Pour the flour, all at once, into the hot mixture. Mix the ingredients. Place on the stove again; stir and cook until the ingredients are well blended and the paste does not stick to the sides of the pan. Do not cook the mixture too long. The fat should not separate from the other ingredients.

While the mixture is hot, add the eggs, unbeaten, one at a time. Beat after adding each egg. When the ingredients are thoroughly mixed, drop the mixture by tablespoonfuls on a greased baking sheet or pan.

¹ Use only $\frac{1}{4}$ teaspoon salt if butter is used.

Cream-puff shells are successfully baked by placing them first in a *quick oven* — 450° F. — and baking for 20 minutes, then reducing the heat of the oven to *moderate temperature* — 325° F. and baking for 25 minutes longer. Baking for about 45 minutes is necessary to harden the shell so it will be firm and will not collapse. Yield: 8 large or 10 medium shells.

For the *custard*, use the recipe for butterscotch filling, page 324, with the following changes: Use $\frac{3}{4}$ cup of white sugar instead of 1 cup of brown. Double the quantity of vanilla. Reduce the butter to 1 tablespoon. After the custard is cooled, you may improve it by folding into it $\frac{1}{2}$ pint *whipped cream*.

To insert the custard in the shells, make a slit in the side of the puff and insert some custard with a teaspoon. Serve on a dessert plate. Use a fork in eating the cream puff.

How may nuts be salted? If nuts are boiled in strong salt water, the seasoning will permeate them. The nuts will taste salty but will not have a gritty coating of salt. Try this method of salting nuts given below. Nuts prepared in this way are delicious.

SALTED PEANUTS OR ALMONDS

$\frac{1}{2}$ cup salt

3 cups water

2 cups shelled unroasted peanuts
or shelled almonds

2 teaspoons butter

Blanch the nuts, *i.e.*, remove their skins by placing them in boiling water for 3 minutes. Drain, cover with cold water, then slip off the skins.

Put the salt, water, and nuts in a saucepan. Boil for $\frac{1}{2}$ hour. Drain and rinse off the salt. Place in a shallow pan. Add the butter. Bake in a *moderate oven* — 375° F. — for 40 to 50 minutes or until slightly browned. Pour on to unglazed paper. Cool.

How is a Christmas-tree cake made? Does a look at Figure 149 make you want to bake a Christmas-tree cake? For a Christmas dinner or a Christmas party, this cake is very appropriate. It is a *fruit cake* — not heavily laden with fruits as an English fruit — but having enough fruit to make it taste good and keep moist for several weeks if stored in a tightly-covered tin box.



Suggested by a cake devised by Alice Bradley

FIGURE 149. A CHRISTMAS-TREE CAKE

Birthday-cake candle holders with red candles are used to decorate this cake. A circular piece of paraffin paper is placed under each candle holder to protect the frosting. Red cinnamon candies are sprinkled over the coconut. A tinsel star is thrust into the top layer.

The cake is baked in 6 layers, each one about an inch less in diameter than the one underneath. Four pans with sloping sides about $1\frac{1}{2}$ inches deep were used for the 4 lower layers. The largest pan was about 7 inches in diameter. (Shopping in several stores was necessary to get pans of proper diameter.) For the next to the top layer, one cup of a muffin pan was used, and for the top layer, a timbal mold.

FRUIT CAKE

$\frac{1}{2}$ cup butter or other fat	4 cups soft wheat or pastry flour,
2 cups sugar	sifted before measuring
2 eggs	$\frac{1}{2}$ teaspoon salt
1 cup sour milk	$\frac{1}{2}$ teaspoon baking soda
1 package dates	2 or 3 tablespoons baking powder
1 package currants	(See footnote, page 88.)
$\frac{1}{4}$ pound citron	$1\frac{1}{2}$ teaspoons each cinnamon and
$\frac{1}{4}$ pound candied lemon peel	nutmeg
1 cup nut meats	1 teaspoon cloves

Wash and dry the raisins, dates, and currants. Stone the dates and cut them in pieces. Cut into bits or chop the citron and candied lemon peel. Sprinkle a few spoonfuls of flour, taken from the measured flour, over the fruit and nuts.

Mix the other ingredients of the cake as directed on page 556. Add the floured fruit and nuts last. Pour into the greased pans.

Bake in a *moderate* oven — 275° F. for 2 hours.

For frosting the cake prepare $1\frac{1}{2}$ times the recipe for uncooked frosting, page 560. Mix a small quantity of green paste for coloring foods in 1 teaspoon of water. Add a few drops of this to the frosting.

To tint the coconut, pour a few drops of the coloring solution on a plate. Sprinkle some shredded canned coconut over the plate and mix until the coconut is tinted evenly. Repeat this process until the entire can of coconut is tinted.

Arrange the sloping layers with the smaller diameter for the base, in the order of their size. Spread jam or preserves between the layers. Then spread the exposed surface with the frosting. Sprinkle the tinted coconut over the frosting. *Garnish* the cake as shown in Figure 149.

In *serving the cake*, remove the layers, one at a time beginning at the top. Cut the larger layers in pieces.

SUMMARY

Invitations to a party should be answered usually in the manner given, *i.e.*, verbally or by writing. Both invitations and replies should be *sincere*.

Introductions :

1. Present a younger person to an older person.
2. Present a boy to a girl or a man to a woman.
3. Present a less prominent person to one of greater importance.
4. The one *doing the introducing rises*.
5. A *boy or man* being introduced *rises*.
6. A girl or woman *remains seated* if a boy or man or other girl or woman is being presented; she *rises* if an older woman, or a much older man, is being introduced.
7. A boy or man *shakes hands* with another boy or man.
8. A girl or woman usually *bows*, without shaking hands, to another girl or woman or to a boy or man in *formal* company, but may *shake hands* in *less formal* company.

REVIEW QUESTIONS AND PROBLEMS

1. A school girl by the name of Helen Gray goes home with her classmate, Mary Cowan. Mary's mother, who has never met Helen, meets the girls at the door. What do you think Mary should do and say? What should Helen do and say?

2. Mary's mother invites Helen to stay to the evening meal. What should Helen say in accepting the invitation? When Helen leaves Mary's home after dinner, what should she say?

3. A class is having a tea at school to which the mothers of the girls of the class are invited. Write an invitation that would be suitable for any girl of the class to take home to her mother.

4. Make a list of at least five topics that would be suitable for you to discuss at a tea with one of your teachers or with a classmate's mother.

5. At a school party, sandwiches and cocoa are served. How should you eat the sandwiches? How should you use the teaspoon accompanying the cup of cocoa?

HOME WORK

1. Plan a menu for an afternoon party to be given at your home to which fifteen girls are invited.

2. Make a list of the food materials, with the quantity of each, you would need to buy to prepare the refreshments. Compute the cost.

3. Make a list of the dishes, silver, and linen needed to serve the refreshments.

APPENDIX

FOODSTUFFS OR NUTRIENTS

WHAT THEY DO IN THE BODY — WHERE VITAMINS ARE FOUND

1. Carbohydrates — give heat or energy.
 - a. starch
 - b. sugarCellulose (roughage) is a carbohydrate, but since it is practically insoluble, it does not supply heat or energy. It gives bulk to diet.
2. Fats — give heat or energy.
3. Proteins — build the body; give heat or energy.
4. Minerals — build the body; regulate body processes.
5. Water — regulates body processes.
6. Vitamins — help to make us grow, to increase resistance to disease, to prevent defective teeth and to give us appetite.

Vitamin A ($C_{20}H_{30}O$), soluble in oils

Found in green-leaf vegetables, yellow vegetables, yellow fruits, liver, whole milk, dairy products, eggs, liver oils of cod, halibut, and salmon. *Helps* (a) to make us grow normally; (b) to keep the mucous membranes healthy; thus aiding in resisting infections; (c) to prevent diseases of the eye caused by a lack of vitamin A in the diet, such as certain types of night blindness.

Carotene (Pro-vitamin A)

Found in carrots and green plants; converted into vitamin A in the liver.

Vitamin B Group, soluble in water

1. *Vitamin B* (B_1) (thiamin, $C_{12}H_{18}N_4OSCl_2$)

Found in whole grains, especially wheat germ, lean pork, legumes, liver, kidney, heart, oysters, milk, yeast, root and leaf vege-

tables. *Helps* (a) to make us grow normally; (b) to maintain a normal appetite; (c) to prevent and correct beri-beri.

2. *Riboflavin* ($C_{17}H_{20}N_4O_6$)

Found in milk, liver, other meats (lean), oysters, eggs, leaf and other green vegetables. *Helps* (a) to make us grow normally; (b) probably to keep the skin healthy.

3. *Vitamin PP* (nicotinic acid, $C_6H_5NO_2$)

Found in wheat germ, liver, other meats (lean), leaf and other green vegetables, milk. *Helps* (a) to prevent and cure a disease called pellagra.

4. *Vitamin B₆* or *Vitamin H* ($C_7H_{11}NO_3$)

Found in vegetable fats, grains, seeds of legumes, yeast, meats, and fish. *Helps* to relieve extreme nervousness, insomnia, and other disturbances after a patient has been cured of pellagra and beri-beri.

Vitamin C (ascorbic acid) ($C_6H_8O_6$), soluble in water

Found in fresh fruits, especially citrus fruits, tomatoes, leaf and other green vegetables, commercially canned green vegetables and fruits. *Helps* (a) to make us grow normally and keep healthy; (b) to maintain healthy gums; (c) to prevent a disease called scurvy, which is characterized by inflamed bleeding gums, loosened and decayed teeth, and sore joints.

Vitamin D (calciferol) ($C_{28}H_{44}O$), soluble in fats

Found in fish liver oils, salmon, egg yolk, vitamin D milk. *Helps* (a) to prevent rickets, a children's disease affecting the bones, severe cases causing bowed legs and other disfigurements; (b) to build healthy teeth.

Vitamin E ($C_{29}H_{50}O_2$), soluble in fats

Found in wheat germs, green lettuce, vegetable oils, seeds of legumes, meat, milk, egg yolk. *Helps* in reproduction.

Vitamin K ($C_{32}H_{48}O_2$), soluble in fats

Found in green leaf vegetables and tomatoes. *Helps* in clotting of blood and the prevention of hemorrhage.

EFFECT OF HEAT ON VITAMINS

The vitamins most affected by heat are:

A — affected by high temperature in the presence of air.

*B*₁ — (thiamin) affected by heat, especially in the presence of soda.

C — (ascorbic acid) readily affected, especially in the presence of air.

PROBABLE AMOUNT OF VITAMINS NEEDED DAILY

Since it is recognized that vitamins are chemical compounds whose composition is fairly well known, they can now be measured somewhat accurately. Their quantity is usually expressed either in *units* or in *milligrams*, as given in the following:

<i>Vitamin A</i> —	Child, 6000 to 8000 International Units Adult, 3000 to 6000 International Units
<i>Vitamin B</i> ₁ — (thiamin)	Child, approximately 450 International Units Adult, 250 to 400 International Units
<i>Riboflavin</i> —	Child, 1.3 to 1.8 milligrams Adult, 1.8 milligrams
<i>Vitamin PP</i> — (nicotinic acid)	Child and adult, probably 25 milligrams for preventive treatment.
<i>Vitamin C</i> — (ascorbic acid)	Child and adult, 30 to 60 milligrams (<i>Vitamin C</i> cannot be stored in the body).
<i>Vitamin D</i> —	Child and adult, 135 to 200 International Units
<i>Vitamin B</i> ₆ , <i>E</i> , <i>K</i> —	Not known

WEIGHTS AND APPROXIMATE MEASURES OF SOME COMMON FOOD MATERIALS

<i>Food</i>	<i>Weight</i>	<i>Measure</i>
Almonds, in shell	1 pound	1 $\frac{1}{3}$ cups, shelled
Apples	44-50 pounds	1 bushel
Apricots, dried	1 pound	3 cups
Beans, dried	1 pound	2 $\frac{1}{2}$ cups
Butter	1 pound	2 cups
Cocoa	1 pound	3 $\frac{1}{2}$ cups
Coffee, ground	1 pound	4 $\frac{1}{2}$ cups
Corn meal	1 pound	3 cups
Cornstarch	1 ounce	3 tablespoons
Currants, dried	1 pound	2 $\frac{2}{3}$ cups
Eggs, whole	1 pound	9 eggs
Flour, Graham	1 pound	3 $\frac{1}{4}$ cups
Flour, pastry or soft wheat	1 pound	4 cups
Flour, whole wheat	1 pound	3 $\frac{1}{2}$ cups
Gelatin, granulated	1 ounce	4 tablespoons
Lard	1 pound	2 cups
Peanuts, in shell	1 pound	1 $\frac{3}{4}$ cups, shelled
Pecans, in shell	1 pound	2 cups, shelled
Macaroni	1 pound	3 cups, broken into pieces
Oats, rolled	1 pound	4 $\frac{3}{4}$ cups
Peas, split	1 pound	2 cups
Potatoes, white	60 pounds	1 bushel
Prunes, dried	1 pound	3 cups
Raisins	1 pound	3 cups
Rice	1 pound	2 $\frac{1}{3}$ cups
Salt, table	1 pound	1 $\frac{1}{2}$ cups
Sugar, brown	1 pound	2 $\frac{2}{3}$ cups
Sugar, granulated	1 pound	2 cups
Sugar, powdered	1 pound	2 $\frac{2}{3}$ cups
Sugar, 4X	1 pound	3 $\frac{1}{2}$ cups
Tapioca	1 pound	2 $\frac{3}{8}$ cups
Walnuts, soft-shell, in shell	1 pound	2 cups, shelled

POINTS IN SELECTING KITCHEN UTENSILS

ALUMINUM

Characteristics: is light, easily cleaned, and durable; heats quickly; is not acted upon by food acids; does not rust destructively.

Cast — is thick and expensive; does not bend.

Stamped — is thinner and lighter than cast and less expensive; if very thin, dents and bends easily.

Useful for: saucepans, double boilers, measuring cups, cooking spoons, teakettles, tea and coffee pots, steamers, griddles, frying pans, pressure cookers, waterless cookers.

Care: clean with neutral soap; scour with fine steel wool or wire dish cloth; avoid using washing soda or other alkalies.

CAST IRON

Characteristics: is durable, unharmed by high cooking temperatures, and inexpensive; heats evenly, rusts, is heavy to handle, and discolors acid foods.

Useful for: frying kettles for deep-fat frying, frying pans, griddles.

Care: clean with soap or scouring powders, wire dish cloths; keep dry or oil to prevent rusting.

RUSSIAN IRON¹

Characteristics: is durable, unharmed by high cooking temperatures, and more expensive than cast iron; does not rust.

Useful for: bread pans, baking sheets, roasting pans.

Care: clean with scouring powders.

¹ Iron coated with an oxide of iron.

STEEL

Characteristics: is durable if of good grade, and is stained by acids unless the steel is "stainless."

Useful for: knives, choppers, spatulas, can openers, scissors.

Care: clean with scouring powders.

TIN AND WIRE¹

Characteristics: is light, inexpensive, and a good conductor of heat; melts at a low temperature; unless *retinned* or *twice dipped*, coating wears off readily and iron base rusts.

Useful for: measuring cups, cake and pie pans, strainers, cookie cutters, sifters, strainers, egg beaters, cake coolers, frying baskets, potato ricers.

Care: clean with soap; use scouring powder sparingly, as it wears off tin coating; use brush for cleaning wire ware.

ENAMELWARE²

Characteristics: is easily cleaned, light, durable if carefully handled, not affected by food acids; enamel cracks and breaks off if suddenly cooled or heated.

Useful for: saucepans, double boilers, dish pans, colanders, pudding pans, mixing bowls, ladles, pitchers, custard cups, refrigerator dishes.

Care: clean with soap or scouring powder.

GALVANIZED IRON³

Characteristics: does not rust; is acted upon by acids.

Useful for: water buckets, sprinkling cans, food bins.

Care: clean with soap; scour with a mixture of kerosene and baking soda or bath brick; rinse thoroughly.

¹ Iron coated with tin.

² Iron coated with enamel, *i.e.*, glass; also called granite and agate ware.

³ Iron coated with zinc.

GLASSWARE

Characteristics: is easily cleaned; holds heat; is not acted upon by acids; is broken by knocks or sudden changes of temperature.

Useful for:

Ordinary glass — measuring cups, mixing bowls, lemon extractors, food containers.

Oven glass (may be used for both baking and serving dishes) — casseroles, custard cups, pie plates, bread and loaf-cake pans, platters.

Care: clean with soap or fine scouring powder.

EARTHENWARE

Characteristics: is easily cleaned; holds heat; is not acted upon by acids; is breakable; poor grades are absorbent.

Useful for: casseroles, bean pots, custard cups, tea pots, drip coffee pots, mixing bowls, food containers. (Baking utensils may be used also for serving dishes.)

Care: clean with soap or fine scouring powder.

WOOD

Characteristics: is a non-conductor of heat; is not acted upon by acids; spoons do not scratch pans or bowls and are noiseless; absorbs odors and flavors.

Useful for: cooking spoons, chopping bowls, bread boards, mallets, steak planks.

Care: scrub with cold water and scouring powder, dry in the air to prevent mildew.

DESTROYING HOUSEHOLD PESTS ¹

FLIES

Prevent flies from breeding by keeping

1. Garbage in clean, covered cans;
2. Stable refuse in covered bins, removing it once or twice a week, scattering it thinly over fields;
3. Outdoor toilets screened; wastes covered daily with sifted ashes or fine road dust, removed often and buried far away from wells and springs used for drinking.

Destroy flies by

1. Swatting;
2. Fly paper;
3. Using a mixture of formaldehyde solution, water, milk, and brown sugar. Buy a 40% solution of formaldehyde in water. Mix $\frac{1}{2}$ cup milk, $\frac{1}{2}$ cup water, 1 teaspoon formaldehyde solution, 1 teaspoon brown sugar. Pour into a saucer; put a piece of bread in the middle of the saucer. Darken a room, leaving only one light spot. Place the saucer in the light place. (The saucer should be placed, of course, out of the reach of small children and pets.)

ANTS

If you can, find the colonies in which the ants live and destroy the ants with boiling water. Prevent ants from collecting in the house by keeping foods, especially sirups, cakes, and pies, in covered containers. Food which cannot be covered may be placed on a support and the legs of the support placed in pans of water.

Destroy ants by

1. *Saturating sponges with sugar and water solution*, placing the sponges where the ants will collect, then dropping the sponges into boiling water.
2. *Filling small dishes with a solution of sugar, borax, and boiling water*, and placing the dishes where the ants will congregate.

¹ Adapted from *Household Insects and Their Control*, New York State College of Agriculture at Cornell University.

ROACHES

Roaches collect in moist, dark places. Keep such places as cupboards and draining boards as dry as possible.

Destroy roaches by

1. *Dusting* a fine powder called *sodium fluoride* over tables, cupboards, and places where the insects collect. Sodium fluoride may be used alone or mixed with an equal quantity of flour. Spread the powder by sprinkling or blow it into crevices with a pair of bellows. Keep this chemical away from food, children, and pets; it is poisonous.
2. *Sprinkling borax* over places where the insects collect.

BED BUGS

Bed bugs are sometimes brought into a home on traveling bags. These pests may travel from one apartment or house to another. They are more likely to collect in wooden beds than in metal ones.

Destroy bed bugs by

1. Taking down the bed and pouring *gasoline* or *kerosene* into the crevices and joints. Of course, gasoline or kerosene should not be used in the same room with an open flame. Gasoline may be poured into the crevices between the woodwork and wall of a room without harming the wall paper. Apply this remedy every three or four days until the bugs disappear completely.
2. Pouring *boiling water* into the crevices and joints of a bed. This is not a suitable method to use on a finely finished wooden bed.

MOTHS

Prevent moths from getting into clothes, furs, upholstering, and carpets by

1. *Killing moths* that fly about in the house. The moths lay eggs which hatch and produce larvæ. These eat materials, especially wool, mohair, and fur.
2. Keeping *woolen garments* and *furs* clean, aired, and sunned often. A soiled garment should never be stored.

3. *Storing garments*, free from eggs or larvæ, in *paper bags*. After the garment is placed in the bag, the latter should be sealed so that moths cannot enter. Small garments may be wrapped in *newspapers*. Several wrappings should be used so there are no crevices through which moths may enter. Clothes may be sealed in paper suit boxes.

4. *Storing garments* in a *cedar chest*. The vapor from red cedar may destroy young larvæ. It will not kill moths or eggs, but the insects are repelled by the vapor and do not enter a cedar chest.

5. *Spraying garments* with *carbon tetrachloride* or similar substances which vaporize readily. Carbon tetrachloride may be purchased at a drug store. It is not inflammable or explosive.

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MEASUREMENT EQUIVALENTS

1 pint (pt.)	2 cups (c.)
1 cup (c.)	16 tablespoons (tb. or T.)
1 tablespoon (tb. or T.)	3 teaspoons (t.)

WEIGHT-HEIGHT-AGE TABLES FOR GIRLS AND BOYS OF SCHOOL AGE

The tables on pages 598 and 599 were compiled by Dr. Bird T. Baldwin and Dr. Thomas D. Wood. They are reprinted here through the courtesy of the American Child Health Association.

The starred numbers are the estimated weights of children who are taller or shorter than the groups of children observed in this study.

Take your age at the nearest birthday; your height at the nearest full inch; and your weight at the nearest full pound, with outdoor garments and shoes removed.

WEIGHT-HEIGHT-AGE TABLE FOR GIRLS OF SCHOOL AGE

Ht. Ins.	5 Yrs	6 Yrs	7 Yrs	8 Yrs	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs
38	33	33												
39	34	34												
40	36	36	36*											
41	37	37	37*											
42	39	39	39											
43	41	41	41	41*										
44	42	42	42	42*										
45	45	45	45	45	45*									
46	47*	47	47	48	48*									
47	49*	50	50	50	50	50*								
48		52	52	52	52	53*	53*							
49		54	54	55	55	56	56*							
50		56*	56	57	58	59	61	62*						
51			59	60	61	61	63	65						
52			63*	64	64	64	65	67						
53			66*	67	67	68	68	69	71*					
54				69	70	70	71	71	73*					
55				72*	74	74	74	75	77	78*				
56					76	78	78	79	81	83*				
57					80*	82	82	82	84	88	92*			
58						84	86	86	88	93	96*	101*		
59						87	90	90	92	96	100	103*	104*	
60						91*	95	95	97	101	105	108	109	111*
61							99	100	101	105	108	112	113	116
62							104*	105	106	109	113	115	117	118
63								110	110	112	116	117	119	120
64								114*	115	117	119	120	122	123
65								118*	120	121	122	123	125	126
66									124	124	125	128	129	130
67									128*	130	131	133	133	135
68									131*	133	135	136	138	138
69										135*	137*	138*	140*	142*
70										136*	138*	140*	142*	144*
71										138*	140*	142*	144*	145*
AGE — YEARS	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Av. Ht. (Ins.)	{ Short Med. Tall	43 45 47	45 47 50	47 50 53	49 52 55	50 54 57	52 56 59	54 58 62	57 60 64	59 62 66	60 63 66	61 64 67	61 64 67	61 64 67
Av. An. Gain (Lbs.)	{ Short Med. Tall	4 5 6	4 5 8	4 5 8	5 7 9	6 8 11	6 10 13	10 13 9	13 10 8	10 6 4	7 4 4	2 3 1	1 1 1	1 1 1

WEIGHT-HEIGHT-AGE TABLE FOR BOYS OF SCHOOL AGE

Ht. INS.	5 YRS	6 YRS	7 YRS	8 YRS	9 YRS	10 YRS	11 YRS	12 YRS	13 YRS	14 YRS	15 YRS	16 YRS	17 YRS	18 YRS	19 YRS
38	34	34*													
39	35	35*													
40	36	36*													
41	38	38	38*												
42	39	39	39*	39*											
43	41	41	41*	41*											
44	44	44	44	44*											
45	46	46	46	46*	46*										
46	47*	48	48	48	48*										
47	49*	50	50	50	50*	50*									
48		52	53	53	53	53*									
49		55	55	55	55	55	55*								
50		57*	58	58	58	58	58*	58*							
51			61	61	61	61	61	61*							
52			63	64	64	64	64	64	64*						
53			66*	67	67	67	67	68	68*						
54				70	70	70	70	71	71	72*					
55				72*	72	73	73	74	74	74*					
56				75*	76	77	77	78	78	78	80*				
57					79*	80	81	81	82	83	83*				
58					83*	84	84	85	85	86	87				
59						87	88	89	89	90	90	90			
60						91*	92	92	93	94	95	96			
61							95	96	97	99	100	103	106*		
62							100*	101	102	103	104	107	111	116*	
63							105*	106	107	108	110	113	118	123	127*
64								109	111	113	115	117	121	126	130*
65								114*	117	118	120	122	127	131	134
66									119	122	125	128	132	136	139
67									124*	128	130	134	136	139	142
68										134	134	137	141	143	147
69										137	139	143	146	149	152
70										143	144	145	148	151	155
71										148*	150	151	152	154	159
72											153	155	156	158	163
73											157*	160	162	164	167
74											160*	164	168	170	171

AGE—YEARS		6	7	8	9	10	11	12	13	14	15	16	17	18	19
Av. Ht. (Ins.)	{ Short	43	45	47	49	51	53	54	56	58	60	62	64	65	65
	{ Med.	46	48	50	52	54	56	58	60	63	65	67	68	69	69
	{ Tall	49	51	53	55	57	59	61	64	67	70	72	72	73	73
Av. An. Gain (Lbs.)	{ Short	3	4	5	5	5	4	8	9	11	14	13	7	3	
	{ Med.	4	5	6	6	6	7	9	11	15	11	8	4	3	
	{ Tall	5	7	7	7	7	8	12	16	11	9	7	3	4	

FOOD VALUES OF COMMON FOODS

The data for the table on pages 602-609 were compiled from various sources. For the most part the measures, weights, total numbers of calories, and numbers of calories from proteins were taken from the American Red Cross textbook *Food and Nutrition* by Wheeler. The vitamin distribution was taken for the most part from *Chemistry of Food and Nutrition, Fifth Edition*, by Dr. H. C. Sherman, reprinted by permission of The Macmillan Company, publishers. The percentages of the amounts of calcium, phosphorus, and iron needed daily by children and adults have been computed from the table on page 453 and the table of *Calcium, Phosphorus, and Iron in Grams per 100 Calories of Food Material* by Sherman.

In the vitamin column, + indicates that the food contains the vitamin; ++, that it is a good source of the vitamin; +++, that it is an excellent source; -, that it contains no appreciable amount; ?, that there is doubt as to presence or amount; *, that evidence is lacking or insufficient.

Vitamin G includes *riboflavin*, *vitamin PP*, and other vitamins or factors. See page 35; Note 1, page 37, and Note, page 586.

In the calcium and phosphorus columns, C means children of 3 to 14 years; A, adults.

This table contains single foods both cooked and uncooked. Certain uncooked foods which are never eaten raw are included so that the food value of foods composed of several food materials may be computed. A few commonly used foods consisting of several food materials, such as bread, cake, and cream of tomato soup, are also included in the table.

The food value of a dish such as biscuits, composed of several food materials, may be computed as follows:

FOOD MATERIAL	NUMBER OF SERVINGS	TOTAL CALORIES	CALORIES FROM PROTEINS	PERCENTAGE OF THE AMOUNT NEEDED DAILY OF				
				Calcium		Phosphorus		Iron
				C	A	C	A	
2 c. flour	8	800	96	4.8	7.2	20.8	16.0	13.6
2 tb. butter	2	200	2	0.4	0.6	0.4	0.2	0.4
$\frac{2}{3}$ c. milk	$\frac{2}{3}$	113	23	19.6	29.4	15.1	11.5	2.5
<i>Total for whole recipe:</i>		1113	121	24.8	37.2	36.3	27.7	16.5
One serving (divide by 12)		92.7	10.08	2.06	3.1	3.02	2.3	1.37

FOOD VALUES OF COMMON FOODS

FOOD	MEASURE	WEIGHT IN OUNCES	TOTAL CALORIES	CALORIES FROM PROTEINS
1. Almonds	12-15	0.5	100	13
2. Apples, fresh	1 large	7.5	100	4
3. Apricots, dried	9 halves	1.3	100	7
4. Asparagus, cooked	5 stalks, 3 in.	1.5	10	3
5. Bacon	4-5 small slices	0.5	100	13
6. Banana, fresh	1 medium	4.1	75	4
7. Beans, lima, fresh	$\frac{1}{3}$ cup	2.0	70	16
8. Beans, navy, cooked	$\frac{1}{2}$ cup	3.5	125	32
9. Beans, string	$\frac{1}{3}$ cup	1.2	15	3
10. Beef, lean, round, broiled	$2 \times 1\frac{1}{2} \times 1\frac{1}{8}$ in.	2.0	100	48
11. Biscuits, baking-powder	1 medium	1.3	93	10
12. Blackberries, fresh	$\frac{1}{2}$ cup	6.0	100	9
13. Blancmange	$\frac{3}{8}$ cup	3.9	135	14
14. Bran, wheat	$\frac{1}{4}$ cup	0.6	54	8
15. Bread, Boston brown	$\frac{1}{2}$ slice 3 in. diameter	1.2	67	7
16. Bread, Graham	$3 \times 2 \times \frac{3}{8}$ in.	0.5	33	5
17. Bread, white, water	$3 \times 3\frac{1}{2} \times \frac{1}{2}$ in.	0.7	50	7
18. Butter	1 tablespoon	0.5	100	1
19. Buttermilk	1 cup	8.8	89	29
20. Cabbage, chopped, raw	$\frac{1}{2}$ cup	1.1	10	2
21. Cake, plain	2 in. cube ($\frac{1}{16}$ cake)	1.1	127	10
22. Cake, sponge	$\frac{1}{2}$ cake	1.5	130	14
23. Cantaloupe	$\frac{1}{2}$	9.0	50	3
24. Carrots	2 medium	4.0	40	4
25. Cauliflower	$\frac{1}{8}$ small head	2.3	20	5
26. Celery	$\frac{1}{4}$ cup	1.2	6	2
27. Cheese, whole milk	1 in. cube	0.7	80	23
28. Cheese, cottage	$\frac{1}{4}$ cup	2.3	65	49
29. Cherries, fresh, stoned	$\frac{1}{4}$ cup	1.1	25	1
30. Chicken, roast	slice $4 \times 2\frac{1}{2} \times \frac{1}{4}$ in.	1.6	100	51
31. Chocolate, Baker's	$\frac{1}{2}$ square	0.5	87	7
32. Cocoa, beverage	1 teacup ($\frac{3}{4}$ milk)	6.8	195	31
33. Cocoa, powdered	1 tablespoon	0.3	40	7
34. Corn, canned	$\frac{1}{3}$ cup	3.6	100	11

FOOD VALUES OF COMMON FOODS

VITAMINS				PERCENTAGE OF THE AMOUNT NEEDED DAILY OF				
A	B	C	G	Calcium		Phos- phorus		Iron
				C	A	C	A	
1.	+	++	++	3.7	5.5	7.2	5.4	4.0
2.	+	++	++	1.2	1.8	2.0	1.5	3.2
3.	*	*	*	2.3	3.4	4.4	3.3	3.5
4.	variable	*	*	1.2	1.8	1.8	1.3	3.0
5.	- to +	++	++	0.2	0.3	3.5	2.7	3.3
6.	++	++	++	0.7	1.0	2.3	1.8	3.0
7.	*	*	*	1.4	2.1	6.7	5.1	7.3
8.	+	++	+	5.8	8.8	17.1	15.8	16.9
9.	++	++	++	1.6	2.5	2.0	1.4	2.6
10.	+	++	++	0.7	1.0	12.5	9.8	12.0
11.	*	*	*	2.1	3.1	3.0	2.3	1.4
12.	*	*	*	2.9	4.3	5.8	4.4	6.9
13.	*	*	*	11.8	17.6	9.1	6.9	1.5
14.	+	++	+	2.1	3.2	21.5	16.3	9.2
15.	*	*	*	3.7	5.6	5.5	4.2	5.8
16.	+	+++	+	0.6	0.9	2.8	2.1	2.1
17.	?	+	?	0.5	0.8	1.7	1.3	1.2
18.	+++	-	-	0.2	0.3	0.2	0.1	0.2
19.	+	++	++	26.1	39.0	24.1	18.3	4.2
20.	+	++	++	1.4	2.1	0.9	0.7	2.3
21.	*	*	*	2.4	3.6	3.3	2.5	1.7
22.	*	*	*	1.5	2.2	4.4	3.3	4.5
23.	++	++	++	2.2	3.3	1.9	1.4	2.4
24.	+++	++	++	5.0	7.4	4.0	3.0	3.5
25.	+	++	++	8.1	12.0	4.0	3.0	2.6
26.	- to +	++	*	2.5	3.8	1.2	0.9	1.1
27.	++ to +++	*	+	18.9	28.1	13.9	10.5	1.8
28.	+	*	+	4.7	7.0	44.9	34.0	6.0
29.	++	+	*	0.6	0.9	0.9	0.7	0.8
30.	- to +	+	*	0.7	1.1	13.8	10.4	12.8
31.	-	*	*	1.3	1.9	6.5	4.9	2.5
32.	*	*	*	22.8	34.0	21.3	16.1	3.9
33.	-	*	*	0.9	1.4	5.7	4.3	1.4
34.	*	*	*	0.6	0.9	10.2	7.7	5.3

FOOD	MEASURE	WEIGHT IN OUNCES	TOTAL CALORIES	CALORIES FROM PROTEINS
35. Corn, green, white . . .	1 ear, 6 in.	4.5	50	6
36. Corn meal, cooked . . .	$\frac{2}{3}$ cup	6.0	100	10
37. Corn meal, raw . . .	$\frac{1}{4}$ cup	1.2	121	12
38. Cornstarch, raw . . .	1 tablespoon	0.3	34	—
39. Cracker, soda . . .	1	0.2	25	2
40. Cream, thin . . .	2 tablespoons	1.0	50	2
41. Cucumber, fresh . . .	$\frac{2}{5}$, 7 in.	3.7	16	3
42. Custard : . . .	$\frac{1}{3}$ cup	3.3	113	20
43. Dates, unstoned . . .	3-4	1.0	100	2
44. Egg, white . . .	1	1.0	14	13
45. Egg, whole, in shell, fresh	1	2.5	70	25
46. Egg, yolk . . .	1	0.6	56	11
47. Fat, animal . . .	1 tablespoon	0.4	100	—
48. Figs . . .	3 large	2.2	200	10
49. Fish, lean, broiled . . .	$4 \times 2\frac{1}{4} \times 1$ in.	4.0	133	81
50. Flour, entire wheat . . .	$\frac{1}{4}$ cup	1.0	102	15
51. Flour, white . . .	$\frac{1}{4}$ cup	1.0	100	12
52. Gelatin . . .	1 tablespoon	0.2	25	24
53. Grapefruit . . .	$\frac{1}{2}$ large	7.5	100	7
54. Grapes, fresh . . .	22	3.7	100	5
55. Ham, boiled . . .	$4\frac{3}{4} \times 6 \times \frac{1}{8}$ in.	2.0	150	44
56. Hominy grits, cooked . . .	$\frac{1}{2}$ cup	4.7	70	6
57. Honey . . .	1 tablespoon	1.0	100	1
58. Huckleberries . . .	$\frac{1}{2}$ cup	2.3	50	2
59. Ice cream, vanilla . . .	$\frac{2}{3}$ cup	5.0	320	13
60. Lamb chop, broiled . . .	1	1.6	100	40
61. Lamb, roast . . .	$3\frac{1}{2} \times 4\frac{1}{2} \times \frac{1}{8}$ in.	1.8	100	41
62. Lemon juice . . .	1 tablespoon	0.5	5	—
63. Lettuce . . .	$\frac{1}{4}$ head	2.3	12	3
64. Liver, calves, broiled . . .	medium serving	2.8	100	62
65. Macaroni, cooked . . .	$\frac{1}{2}$ cup	2.6	50	7
66. Maple sirup . . .	2 tablespoons	1.6	133	—
67. Milk, whole, fresh . . .	$\frac{1}{2}$ pint	8.5	170	34
68. Molasses . . .	2 tablespoons	1.6	133	4
69. Muffins, plain . . .	1 medium	1.5	112	13
70. Mutton, roast . . .	$3 \times 3\frac{3}{4} \times \frac{1}{8}$ in.	1.2	100	33
71. Oatmeal, cooked . . .	$\frac{2}{3}$ cup	5.2	67	11
72. Oil, cottonseed . . .	1 tablespoon	0.4	100	—
73. Oil, olive . . .	1 tablespoon	0.4	100	—
74. Onions, raw . . .	3-4 medium	7.2	100	13

VITAMINS				PERCENTAGE OF THE AMOUNT NEEDED DAILY OF				
A	B	C	G	Calcium		Phos- phorus		Iron
				C	A	C	A	
35.	+	++	—	0.3	0.4	5.1	3.9	2.6
36.	*	+	*	0.5	0.7	5.3	4.0	2.0
37.	— to +	+	*	trace	0.1	6.4	4.8	2.4
38.	*	*	*	*	*	*	*	*
39.	*	*	*	0.1	0.2	0.6	0.5	0.6
40.	+++	++	+ variable	2.5	3.7	2.2	1.7	0.3
41.	— to +	+	+++?	1.4	2.1	3.0	2.3	1.2
42.	*	*	*	10.9	16.3	10.4	7.8	4.4
43.	+	++	—	1.9	2.8	1.6	1.2	5.7
44.	—	—	—?	0.3	0.4	0.3	0.2	0.2
45.	+++	+ to +++	—?	3.1	4.7	8.5	6.5	9.5
46.	+++	++	—?	2.0	3.0	6.6	5.0	8.6
47.	+	—	—	*	*	*	*	*
48.	+	*	+ to —	10.2	15.2	7.4	5.6	12.7
49.	— to +	+	+	2.2	3.3	23.3	17.6	7.4
50.	+	+++	—	0.9	1.4	7.0	5.1	4.8
51.	—	— to +	—	0.6	0.9	2.6	2.0	1.7
52.	*	*	*	*	*	*	*	*
53.	+	++	+++	4.0	6.0	3.6	2.7	3.9
54.	+	+	+ to —	1.9	2.8	3.2	2.4	2.1
55.	— to +	++	—	0.6	0.9	12.0	8.9	11.0
56.	*	*	*	0.1	0.2	1.9	1.4	1.2
57.	—	—	—	0.2	0.3	0.6	0.4	2.0
58.	*	*	*	1.3	2.0	0.5	0.4	4.0
59.	++	++	+	8.8	13.2	7.8	5.9	1.2
60.	— to +	+	*	0.6	0.9	10.8	8.2	10.0
61.	— to +	+	*	0.6	0.9	11.0	8.4	10.3
62.	+	++	+++	0.3	0.4	—	—	—
63.	+ to +++	++	++	2.7	4.0	2.7	2.0	6.3
64.	++ to ++++	++	+++	0.9	1.3	16.6	12.6	15.5
65.	*	*	*	0.3	0.4	2.0	1.5	1.1
66.	*	*	*	4.9	7.3	0.4	0.3	8.9
67.	+++	++	+ variable	29.5	44.1	22.7	17.2	3.8
68.	—	+	—	9.8	14.7	2.0	1.5	22.6
69.	*	*	*	3.1	4.7	4.4	3.3	2.3
70.	— to +	++	*	0.5	0.7	8.9	6.8	8.3
71.	— to +	++	+	1.1	1.7	6.6	5.0	4.3
72.	?	—	—	—	—	—	—	—
73.	— to +	—	—	—	—	—	—	—
74.	— to +	+	++	6.9	10.3	9.3	7.0	6.7

FOOD	MEASURE	WEIGHT IN OUNCES	TOTAL CALORIES	CALORIES FROM PROTEINS
75. Orange	1 medium	7.1	75	5
76. Orange juice	$\frac{1}{2}$ cup	4.0	50	—
77. Oysters, raw	$\frac{1}{2}$ cup	5.4	75	37
78. Parsnips	$\frac{1}{2}$ cup, sliced	3.0	50	5
79. Pastry	$\frac{1}{8}$ crust	4.0	94	6
80. Peach, fresh	1 medium	3.3	33	2
81. Peanuts	20-24 single nuts	0.6	100	19
82. Pear, fresh	1 medium	3.1	50	2
83. Peas, canned	$\frac{1}{2}$ cup drained	2.9	66	17
84. Peas, dried	3 tablespoons	1.5	138	39
85. Pecans	12 meats	0.5	100	5
86. Pie, butterscotch	$\frac{1}{8}$ pie	4.4	369	27
87. Pineapple, canned	1 slice, 3 tbs. juice; or $\frac{1}{4}$ cup, shredded	2.3	100	1
88. Pineapple, fresh	2 1-in. slices	8.2	100	4
89. Plums, fresh	3-4 large	4.4	100	5
90. Pork chop, lean, cooked	1	2.4	200	64
91. Potato, sweet, baked	1 medium	6.0	200	12
92. Potato, white, boiled 15 ms.	1 medium	3.4	100	11
93. Potatoes, white, creamed	$\frac{1}{2}$ cup	3.4	88	9
94. Prunes	6 medium	2.1	150	4
95. Raisins	$\frac{1}{4}$ cup	1.0	100	3
96. Raspberries, fresh	$\frac{3}{8}$ cup	1.7	33	3
97. Rhubarb, fresh	1 cup	3.8	25	2
98. Rice, brown, steamed	$\frac{3}{4}$ cup	4.0	100	10
99. Rice pudding, creamy	$\frac{1}{2}$ cup	3.3	155	17
100. Rice, white, steamed	$\frac{3}{4}$ cup	4.0	100	9
101. Rice, white, raw	1 tablespoon	0.5	50	4
102. Roll, yeast	1	1.3	100	14
103. Sauce, white, medium	$\frac{1}{4}$ cup	2.4	93	10
104. Soup, corn, cream	$\frac{1}{2}$ cup	5.8	198	24
105. Soup, pea, cream	$\frac{1}{2}$ cup	6.0	144	24
106. Soup, tomato, cream	$\frac{1}{2}$ cup	6.4	189	25
107. Spinach, cooked	$\frac{1}{2}$ cup	5.2	25	3
108. Squash, winter, cooked	$\frac{1}{2}$ cup	3.9	55	4
109. Strawberries, fresh	$\frac{1}{2}$ cup	4.5	50	5

VITAMINS				PERCENTAGE OF THE AMOUNT NEEDED DAILY OF				
A	B	C	G	Calcium		Phos- phorus		Iron
				C	A	C	A	
75.	+	++	+++	6.6	9.8	3.0	2.3	1.9
76.	+	++	+++	3.5	5.0	1.8	1.4	1.5
77.	++	++	+	7.9	11.9	22.9	17.4	44.6
78.	- to +	++	*	4.5	6.8	5.8	4.4	3.0
79.	*	*	*	0.3	0.4	1.3	0.9	0.8
80.	+ to ++	+ to ++	++	1.6	1.9	1.9	1.4	1.6
81.	+	++	*	1.3	1.9	7.3	5.5	2.4
82.	*	++	+	1.2	1.8	2.0	1.5	1.5
83.	++	+ to ++	++	1.7	2.6	7.9	6.0	5.5
84.	+	++	?	3.6	5.3	16.5	12.5	15.2
85.	+	++	*	1.2	1.8	4.5	3.4	2.3
86.	*	*	*	11.4	17.0	12.2	9.2	5.6
87.	+	++	++?	*	*	*	*	*
88.	+	++	++	4.1	6.1	6.4	4.8	7.7
89.	*	++	*	2.4	3.6	3.8	2.9	3.9
90.	- to +	++	-	0.9	1.4	17.2	13.1	16.0
91.	+++	++	++	3.2	4.8	7.4	5.6	5.4
92.	+	++	+ to ++	1.6	2.4	6.9	5.2	10.4
93.	++	++	+ to ++	2.1	3.2	5.9	4.5	7.9
94.	++	++	-	2.7	4.0	5.2	3.9	10.0
95.	-	+	-	1.9	2.8	3.8	2.9	9.3
96.	++	+	+++	2.4	3.6	2.5	1.9	2.0
97.	*	*	+	4.7	7.0	3.3	2.5	7.2
98.	+	++	-	0.3	0.4	6.0	4.5	3.9
99.	*	*	*	11.8	17.7	10.1	7.7	2.2
100.	-	-	-	0.1	0.1	2.7	2.0	1.7
101.	-	-	-	trace	trace	1.3	1.0	0.9
102.	?	+	-	1.0	1.6	3.4	2.6	2.4
103.	*	*	*	7.5	11.3	6.1	4.6	1.2
104.	*	*	*	10.5	15.7	18.0	13.7	6.8
105.	*	*	*	11.1	16.5	13.1	9.9	5.2
106.	*	*	*	17.8	26.6	15.4	11.6	4.5
107.	+++	+	++	7.0	10.4	7.1	5.4	25.1
108.	+++	+	+	2.2	3.3	1.8	1.4	4.8
109.	+	+	+++	5.2	7.8	3.6	2.7	6.8

FOOD	MEASURE	WEIGHT IN OUNCES	TOTAL CALORIES	CALORIES FROM PROTEINS
110. Sugar, granulated . . .	1 tablespoon	0.4	50	—
111. Sugar, lump	1	0.2	29	—
112. Tapioca, raw	1 tablespoon	0.5	48	—
113. Tomatoes, canned . . .	$\frac{1}{2}$ cup	4.5	28	6
114. Tomatoes, fresh	1 small	3.8	25	4
115. Turnips, raw	$\frac{1}{2}$ cup cubes	2.2	20	3
116. Veal, leg, lean, cooked .	1 serving	4.3	150	105
117. Walnuts, soft-shelled .	8-16 meats	0.5	100	11

VITAMINS				PERCENTAGE OF THE AMOUNT NEEDED DAILY OF				
A	B	C	G	Calcium		Phos- phorus		Iron
				C	A	C	A	
110.	—	—	—	—	—	—	—	—
111.	—	—	—	—	—	—	—	—
112.	—	—	—	0.2	0.3	1.2	0.9	1.4
113.	++	+++	+	1.4	2.1	3.2	2.4	3.3
114.	++	+++	+	1.2	1.9	2.8	2.1	2.9
115.	— to +	++	+	4.0	6.0	2.9	2.2	2.1
116.	— to +	+?	++	1.5	2.3	28.3	21.5	26.3
117.	+	++	*	1.3	1.9	1.5	1.1	2.0

LIST OF CLASSIFIED RECIPES

Beverages		PAGE
Chocolate		69
Cocoa		68, 69
Coffee		73, 74
Fruit punch		578
Tea		76

Breads	
Biscuits	
baking-powder . . .	302
potato yeast . . .	431
Bread	
brown	309
cinnamon	89
corn	306
date	308
nut	308
raisin	308, 430
Southern spoon . . .	306
whole-wheat	430
yeast	429
Crackers, crisp	240
Croutons	240
Crumbs, buttered	280
Muffins	
bran	91
Graham	88
plain	88
whole-wheat	88

	PAGE
Rolls	
Clover Leaf	432
Parker House	432
potato yeast	431
Sticks	
corn	307
corn-meal	307
soup	241
Toast	78

Breakfast Cereals	
Cream of Wheat . . .	52
Farina	52
Ralston	52
Rice	
boiled	55
brown	54
double-boiler-cooked .	54
Rolled oats	52
Wheatena	52

Cake	
Angel	553
chocolate	553
Chocolate	557
Christmas-tree	580
Fruit	582

	PAGE
Gingerbread	321
Plain	553
Spice	557
Sponge	551
orange	551
Standard	557
White	557

Cake Fillings and Frostings

Chocolate (custard) . . .	561
Cocoa	560
Custard	580
7-minute	560
Uncooked	560

Cookies

Caramel	446
Date (drop)	444
Plain (cut, icebox) . . .	445

Desserts

Apple compote, rosy . . .	326
Apples, scalloped	312
Bavarian cream, caramel	443
Blancmange	314
Brown Betty	312
Chocolate Pudding . . .	315
Cream puffs	579
Custard	
baked	317
plain	317
soft	317
steamed	317
thickened	318

Floating island	318
Fruit	
cup	313
gelatin	442
shortcake	319
Ice cream	
chocolate	569
fruit	570
graham cracker . . .	572
vanilla	569, 572
Ice, water	570
Lemon jelly	439
Pop-corn balls	578
Sherbet	
lemon-milk	571
orange-lemon-milk . .	571
Snow pudding	442

Eggs

Hard-cooked	96
Omelet	
plain	98
puffy	98
Poached, on toast	96
Soft-cooked	96

Fish

Codfish balls	297
Oysters	
fried	409
scalloped	409
stew	409
Salad	293
Steak, baked	406

Fowl, Chicken, and Turkey

	PAGE
Chicken à la King . . .	401
Chicken à la Maryland .	400
Fricassee chicken . . .	400
Roast chicken or turkey.	397
Stewed chicken or fowl .	400

Fruits

Baked apples	26
Compote	
apple	25
fruit	26
rosy apple	26
Dried	46
apricots	46
peaches	46
prunes	46
Sauce	
apple	22
fruit	23

Gravy, Sauces, and Stuffing

Chicken or turkey gravy	398
Custard sauce	317
Gravy (beef)	367, 369
Hard sauce	313
Mock hollandaise sauce .	406
Pineapple-mint sauce . .	386
Stuffing (chicken, turkey)	396
White sauce	237, 246

Meats

Bacon	
cooked in oven	100
pan-broiled	100

Beef

braised	367
roast	370
roll, stuffed	368
stew	379
dried, creamed	101
Chopped meat cakes . .	365
Lamb roast with pine-apple	386

Liver

and bacon	389
loaf	389

Meat

loaf	366
patties	378
soufflé	252
Pork chops, baked . . .	388

Steak

broiled	369
pan-broiled	370

Veal birds	383
----------------------	-----

Meat Substitutes

Baked beans	260
lima	261
Cheese custard	259
Cottage cheese	253
Macaroni and cheese . .	256
Noodles and cheese . . .	257
Potato volcano	257
Rice and cheese	257
Soufflé	
cheese	252
meat	252
plain	252
spinach	283
Welsh rabbit	257

Nuts

PAGE

Almonds, salted . . .	580
Peanuts, salted . . .	580

Pastry

Butterscotch pie . . .	324
Plain pastry . . .	322
Sweet potato pie . . .	325

Picnic Foods

Bacon	542
Baked beans	543
Beef steak	543
Corn on the cob	543
Dreamers	543
Marshmallows	543
Potatoes	543
Sandwiches	230, 543
Toast	543

Preserved Foods

Conserve	534
four-fruit	537
peach	534
rhubarb-pineapple	535
winter	534
Dried corn	530
Jam	533
Jelly	537
Marmalade	534
orange	535
Preserves	533
Spiced pineapple	539

Salads

PAGE

Cabbage, with cream dressing	435
Coleslaw	436
Egg	292
stuffed	293
Fish	293
Fruit	294, 295
Golden	293
Pineapple-carrot	441
Potato	294
Tomato and celery relish	436
Tomato-jelly	441

Salad Dressings

Cooked	292
French	290
Fruit	295
Mayonnaise	291
Thousand Island	292

Sandwiches

Apple, date, and nut	231
Bacon	230
Banana	231
Cheese	230, 543
Cold meat	230
Dried fruit	231
Egg	230
Fresh tomato	231
Jelly	231
Lettuce	231
Marmalade	231
Nut and carrot	231

	PAGE
Peanut	230
Raisin (or date) and nut	231

Sick-Room Foods

Beef juice	482
Beef tea	483
Cereal gruels	482
Diet	
light	484
liquid	482
soft	483
Eggnog	482
Junket custard	484
Toast, softened	483

Soups

Cream of pea	238
Cream of tomato	239
Cream of spinach	247
Meat stock	376
Peanut-tomato	249
Southern bean	249
Vegetable	377

Vegetables

	PAGE
Cabbage with cheese, scalloped	281
Carrots	
and spinach, baked	283
creamed	419
Corn, scalloped	280
Onions	420
Potatoes	
baked	415
scalloped	282
scalloped with bacon	282
scalloped with cheese	282
stewed	418
stuffed	415
sweet, baked	415
sweet, candied	282
sweet, Southern style	415
Rice croquettes	298
Spinach	
plain	419
soufflé	284
Squash (winter), baked	416
Tomatoes, on toast	284
Vegetables, scalloped	281
Yams, candied	282

INDEX

References are to pages. The bold-faced numerals indicate the principal references.

- Accidents at the dining table 137
- Accomplishments for every girl 117
- Accounts, keeping . . 199, 201
- Acid
in bread dough 428
in fruits 33, 38
of fruits producing alkalis 33
- Alcohol formed in bread
dough 426, 427
- Almonds, salted (*recipe*) . . 580
- Aluminum
use in cleaning silver . 213, 218
utensils 27, 29, 588
- Ants 591
- Appearance at the dining
table 138
- Apples
baked (*recipe*) 26
compote (*recipe*) 23
compote, rosy (*recipe*) . . 26
cooking 12, 18
eating 12, 18
sauce (*recipe*) 22
scalloped (*recipe*) 312
selecting 12, 18
serving 14, 17
- Apricots, dried
buying 44, 47
cooking 46
- Ash (mineral matter) in foods 59,
60, 61, 63, 70, 72, 99, 248,
256, 260-262, 266, 267-269,
284, 289, 333, 349, 371, 402,
403, 408, 454
- Asparagus, buying . . . 275, 285
- Baby
bathing 495
caressing 490
carrying 489, 490
holding 490
lifting 489, 490
making happy 489
time to feed 501
toys to amuse 490
- Bacon 387, 391
cooked in oven (*recipe*) . 100
cooking at a picnic . . . 542
fat 101
flavor and digestion of . . 99
pan-broiled (*recipe*) . . . 100
slicing 100
- Bacteria 39, 512
causing spoilage of foods 512, 520
disease 491
in acid food, destroying . 523
in cereals 51
in ice-cream freezer . . . 571
in milk, destroying . . . 499
in oysters 408
in water 534
on dishes 163, 169
useful 255
- Baked beans, cooking at a
picnic 543
- Bakery, field trip to . . . 433
- Baking, tests used in . . . 87, 90
- Baking powder 79, 89
amount to use with flour 305, 309
composition of 303, 309
kinds 303, 309
why stored in tin can . . 303

References are to pages.

- Baking soda**
 amount to use with sour
 milk 304, 309
 destroying vitamins . . . 239, 260
 effect on tomatoes . . . 239
 use in quick breads . . . 303, 309
- Balanced arrangement of furniture** 205
- Bananas**
 selecting 10, 18
 serving 16
- Bathing, need of** 466, 473
- Bavarian cream (recipe)** . 443, 447
- Beans**
 baked (recipe) 260
 buying 278, 285
 dried 259
 dried lima (recipe) . . . 261
 navy, composition of . 260, 262
- Beauty aids** 471
- Bed bugs** 592
- Beef**
 braised (recipe) 367
 cuts of 352, 372
 dried, creamed, on toast
 (recipe) 101
 juice (recipe) 483
 prime rib . . . 352, 356, 370, 372
 roasting and braising, time
 table 372
 roll, stuffed (recipe) . . . 368
 steak, cooking at a picnic . 543
 stew (recipe) 379
 tea (recipe) 483
- Berries, washing** 14, 18
- Beverage**
 for boys and girls . . . 67, 72
 serving . . . 112, 120, 336, 342
- Bill-of-fare, arrangement of** . 104
- Biscuits**
 baking-powder (recipe) . . 302
 potato yeast (recipe) . . . 431
- Blancmange (recipe)** 314
- Blue Points (oysters)** . . . 407
- Bone**
 percentage in porterhouse . 354
 percentage in rib roast . . 356
 removing from mouth . . . 136
- Boston butt (cut of pork)** . 387, 391
- Bottle, feeding, care of** . . 500
- Bouquets** . . . 106, 341, 478-480
- Bowel movement, daily**, 472, 473, 474, 475
- Braising meat** . . . 366, 367, 372
- Bran** 50, 81
- Brass, cleaning** 215
- Bread**
 brown (recipe) 309
 buying 424
 cinnamon (recipe) 80
 cooling 87
 corn (recipe) 306
 crumbs, buttered (recipe) . 280
 date (recipe) 308
 dough, methods of making . 433
 homemade vs. baker's . . . 423
 meat, and potato diet . . . 424
 nut (recipe) 308
 raisin (recipe) 430
 Southern spoon (recipe) . . 306
 toasting 78, 543
 white, foods to eat with . . 424
 whole-wheat for school
 lunch 223, 232
 whole-wheat (recipe) . . . 430
 yeast 428, 429, 430
- Bread and butter plate, placing on table** . . . 109, 115
- Breads**
 with soups 240
 quick 301
- Breakfast**
 menu, planning 105
 nook 205
 table 108, 113
 wholesome 1
 why eat 4
- Breakfast foods** 49

References are to pages.

- Brisket 352, 358, 372
 Brown Betty (*recipe*) 312
 Brown bread (*recipe*) 308
 Budget
 advantages of 197, 201
 following 199, 201
 food 200
 making 197
 Saturday time 190
 time 190, 191, 200
 Buffet, arrangement of arti-
 cles on 205, 206
 Bulky foods, value of . 35, 38, 333,
 344
 Butter
 creaming 229
 melting 84
 spreader 109, 110
 when put on table 114
 Buttering bread 131, 139
 Buying 7, 8
 apples 12, 18
 asparagus 275, 285
 bacon 100, 102
 baking powder 303
 bananas 10, 18
 beans 278, 285
 beef 351, 371, 374
 bones for soup 375
 bread 424
 breakfast cereals 51, 63
 cabbage 275, 285
 canned goods 242-246
 cantaloupes 11, 18
 carrots 275, 285
 celery 275, 285
 chicken 392-394
 citrus fruits 8, 17
 corn meal 305
 dates 45, 47
 dishes 209
 dried fruits 43, 47
 eggs 92, 101
 figs 45, 47
 fish 402
 flour 81, 82, 89, 428, 549
 gas range 176, 186
 gelatin 438
 glassware 211
 grapefruit 8, 17
 ice cream 554
 kitchen utensils 588-590
 lemons 8, 17
 lettuce 274, 284
 liver 388
 muskmelons 11, 18
 oranges 8, 17
 oysters 407
 peas 277, 285
 pineapples 10, 18
 potatoes 276, 277, 285
 raisins 44, 47
 rice 53
 salad oils 289
 silver 212
 spinach 274, 284
 strawberries 9, 18
 sweet corn 277, 285
 table linen 216, 217
 tea 76
 tomatoes 275, 285
 vegetables 273, 284
 Cabbage
 buying 275, 285
 salad with cream dressing
 (*recipe*) 435
 use in salad 435
 value of 271
 washing 279
 with cheese, scalloped
 (*recipe*) 281
 Cake
 angel (*recipe*) 552, 553
 chocolate angel (*recipe*) 553
 chocolate (*recipe*) 557
 Christmas-tree (*recipe*) 580
 classification 548, 561

References are to pages.

- Cake, cup** 554
 failures, cause 558
 fats for 558
 filling (*recipe*) 561, 580
 frosting (*recipe*) 560
 fruit (*recipe*) 582
 how eaten 134, 140
 how related to muffins . . . 553
 mixing, conventional
 method 555, 562
 mixing, muffin method 554, 562
 mixing sponge 551, 561
 orange sponge (*recipe*) . . . 551
 pan 554, 590
 plain (*recipe*) 553
 score card 559
 spice (*recipe*) 557
 sponge 548, 551, 552
 standard (*recipe*) 557
 temperature and time for
 baking 553, 555, 562
 white (*recipe*) 557
- Calcium**
 in milk 65, 72
 lacking in meat 378, 390
 percentages in foods of the
 amount needed daily 454, 600-
 609
 requirement 453
- Calcium-rich foods** 267, 268
- Calories** 329, 343
 counting 329
 each day for boys and girls 329
 from proteins 330, 331, 452, 453,
 600-609
 in common foods 600-609
- Candles on dinner table** . . . 455
- Candy or sweets at close of**
 meal 224, 311
- Canned**
 foods, buying 242, 243, 244, 246
 foods, storing 527
 fruit, score card 521
- Canning** 513, 521
- acid vegetables (time table) 524
 cold pack 517, 521
 fruits (time table) 518
 hot pack 517, 521
 hot-water bath 516, 518, 521
 in high altitude 527
 open-kettle method 516, 521
 oven 520, 521
 pressure cooker, method of 525
- Cans, size, measure, and**
 weight 242
- Cantaloupes**
 selecting, serving 11, 17
- Caramel Bavarian cream**
 (*recipe*) 443
- Carbohydrates**
 compared with fats 288
 in foods 59, 60, 61, 63, 70, 72,
 99, 248, 256, 260-262, 266,
 284, 289, 333, 349, 408, 584
- Carbon dioxide**
 formed in bread dough 426, 427
 produced by baking pow-
 der 79, 89, 303
 produced by baking soda . . . 304
- Carbon monoxide** 178
- Carotene** 271
- Carrots**
 and spinach, baked (*recipe*) 283
 buying 275, 285
 creamed (*recipe*) 419
 use in salads 435, 436
 why valuable food 271
- Carver, consideration for** . . . 459
- Carving**
 ham 460
 roast 458, 459, 463
 sets 456
 steak 457, 462
 suggestions 458, 462
 turkey or chicken 461, 462, 463
- Casein** 254
- Celery, buying** 275, 285
- Cellulose** 35, 38, 333

References are to pages.

- Cereal** 49, 63
 bulk 51, 63
 cooking 52
 for baby and child under
 six 501-506, 508
 how prepared for market . . 49
 how served 119, 124
 package 51, 63
 partially cooked 50, 63
 ready to eat 51, 63
 uncooked 50, 63
- Chairs**, how placed at dining
 table 114
- Cheese** 255, 256, 261
 custard (*recipe*) 259
 kinds 253, 261
 ripened 254, 261
- Chicken**
 à la King (*recipe*) 401
 à la Maryland (*recipe*) . . 400
 and fowl, difference . . 393, 409
 cold-storage 394, 410
 cutting in pieces 398
 dressing and drawing . . 94, 395,
 410
 dry-picked 394, 410
 extenders 393, 400
 flavor of 394
 fresh-killed 394, 410
 fricasseed (*recipe*) 400
 milk-fed 394, 410
 roast (*recipe*) 397, 410
 stewed (*recipe*) 400
 stuffing (*recipe*) 396
 time table for roasting . . 410
 trussing 397
 waste of 392
- Child**
 1 to 6 years, food for . . 503, 506
 school, food for 506
- Children**
 playing with 495, 496
 proper foods for 506, 507
- Chlorophyll** 271
- Chocolate cake and filling** . . 561
- Chocolate cornstarch pudding**
 (*recipe*) 315
- Chopping knife** 248
- Chops**
 "Frenched" 385
 loin, lamb 385, 390
 loin, pork 387, 391
 loin, veal 381, 390
 rib, lamb 385, 390
 rib, pork 382, 391
 rib, veal 381, 390
 shoulder lamb 385, 390
- Chuck** 352, 357, 367, 372
 steak 357, 360, 372
- Cinnamon bread** (*recipe*) . . . 89
- Citizenship** 168, 544
- Citrus fruits** 8, 18
- Cleanliness and health** . 473, 474
- Clear plate** (cut of pork) . 387, 391
- Cloth for dining table** . 107, 337,
 454
- Clothes**
 and health 473, 474
 care of 197
 spending for 196, 198, 201
 suitable at dining table . . 139
- Club steak** 355, 369, 372
- Cocoa** (*recipe*) 68
 for party refreshments . . 69
- Coconut, tinting** 582
- Codfish balls** (*recipe*) 297
- Cod-liver oil** . 494, 496, 501-506,
 508
- Coffee**
 boiled with egg (*recipe*) . . 74
 drip, percolated, vacuum . 73, 74
 pot, washing 75
 pots, kinds 73
 why injurious to boys and
 girls 71, 72
- Colds**
 cause 472
 prevention 472, 474

References are to pages.

- Coleslaw (*recipe*) 436
 Color
 in dining room 203
 in kitchen 149, 157
 of foods 106, 270, 334
 Compromise style of table
 service 339, 344
 Connective tissue . 360, 362, 371
 in veal 382
 Conserve 534, 539
 four-fruit (*recipe*) 537
 peach (*recipe*) 534
 rhubarb-pineapple (*recipe*) . 535
 winter (*recipe*) 534
 Constipation, how avoided . 91,
 470, 474
 Contagious disease patient,
 feeding 485, 487
 Contest
 dishwashing 160
 luncheon 224-228
 Conversation at the table . 138
 Cookies
 caramel (*recipe*) 446
 cut (*recipe*) 445
 date (*recipe*) 444
 drop 444, 447
 Copper, cleaning 215
 Corn
 cooking at a picnic 543
 dried (*recipe*) 530
 scalloped (*recipe*) 280
 sticks (*recipe*) 307
 sweet, buying 277, 285
 Corn bread (*recipe*) 306
 Corn meal, buying 305
 Corn-meal sticks (*recipe*) . . 307
 Cost
 of foods (table) 451
 of meals 450, 461
 Cottage cheese (*recipe*) . . 253
 Courtesy
 at a party 573-577
 at home xvi
 at the table 126-139
 in buying 40
 Cover 110, 115
 breakfast 111
 luncheon 338
 setting 110, 115
 space allowed 110
 Crackers
 and bread, with soup . . 241
 crisp (*recipe*) 240
 Cream
 and sugar, serving . . . 123
 how prepared 71
 method of whipping . . 443
 puffs (*recipe*) 579
 Cream of Wheat (*recipe*) . . 52
 Croquettes
 rice (*recipe*) 298
 time of frying 296
 Croutons (*recipe*) 240
 Crown roast of lamb . . . 385
 Crumbing table 343
 Crumbs
 buttered (*recipe*) 280
 dried 241
 soft 242
 Crust, glazing 432
 Cupboards 152-154
 Curd of milk 252
 Custard 315
 baked (*recipe*) 317
 chocolate (*recipe*) 561
 filling (*recipe*) 580
 kinds 325
 plain (*recipe*) 317
 remedy for curdled . . . 316
 soft (*recipe*) 317
 steamed (*recipe*) 317
 thickened with flour and
 egg 318
 Dampers 184
 Dates, buying 45, 47
 Delmonico steak . 354, 355, 372

References are to pages.

- Demi-tasse** 343
- Desserts**
- for box lunch 231
- for dinner 439-446
- for luncheon or supper . 311-325
- for school lunch . . . 223, 232
- for the sick 483
- frozen 567, 569, 571
- serving 342
- silver for 338
- why served at close of meal 311
- Diet**
- light 484, 487
- liquid 482, 487
- soft 483, 487
- Digestibility of meal** . . 333, 344
- Dining room** . . . 105, 203, 205
- Dinner**
- and luncheon compared 448, 461
- plans 449
- serving 456
- table, setting 454
- Dish towels, care of** . . 166, 169
- Dishes**
- china 211
- draining 165, 169
- draining, rack for . . . 166
- drying with towel . . 166, 169
- earthenware 210, 218
- general, serving . . . 112, 115
- greasy, how washed . . 163
- hot or cold for serving . 120
- kinds 211
- passing and removing from table 121, 124
- placed on table 114
- porcelain 210, 218
- serving, near hostess 112, 115
- shape and design . . . 209, 210
- soaking 163, 164, 168
- Dishwashing**
- and dish-storage center, 144, 154
- contest 156
- efficiency in 167, 169
- motions in 167
- score card 161
- steps in 165, 168
- Dissolving solids in water** . 32
- Doughnuts, time of cooking** . 296
- Draft**
- direct 183
- indirect 184, 186
- Drainboard of sink** 143
- position of 167, 169
- Dreamers (recipe)** 543
- Drying foods** 530, 531
- Earthenware utensils** . . . 29, 590
- Efficient work, suggestions**
- for 192, 201
- Eggnog (recipe)** 482, 483
- Eggs**
- beating 84, 97
- composition of 99, 261
- cooking in water 96, 102
- hard-cooked 96
- in coffee 75
- in custard, saving . . . 317
- in salad (recipe) 292
- packing in water glass . . 95
- poached (recipe) 96
- qualities of good 94, 101
- soft-cooked 96
- soufflé 251
- storage 92
- storing in refrigerator . . 95
- strictly fresh 92
- tests for freshness . . 93-95, 101
- washing 95
- whites of, cutting and folding 98
- yolks of, for babies 502-506, 508
- Enamelware utensils** . . . 27, 29, 589
- English cut** 352, 357, 367, 372
- Equipment**
- kitchen, arrangement of . 144
- needed to prepare food . 142
- Expenditures, household** . 198, 201

References are to pages.

- Expenses for living . . . 195, 196
- Extractives in tough cuts of
meat 350, 371
- Family
coöperating with xvi, 8, 118,
137, 138, 139, 145, 146, 194,
477-481, 489, 490, 495, 496,
507
style of table service 118, 123,
339, 344
- Farina (*recipe*) 52
- Fat
care after frying 299
compared with carbohy-
drates 288, 299
in foods 59, 60, 61, 63, 70, 72,
99, 248, 256, 260-262, 266,
288, 289, 299, 333, 249, 351,
362, 371, 402, 403, 408
slow digestion of 289
temperature for frying . . 296
to clarify 299
use in body . . . 288, 299, 584
- Fat-back (cut of pork) . . . 387
- Feeding bottle, care of . . . 500
- Fell, mutton 386
- Field trip to bakery 433
- Figs, buying 45, 47
- Fillet of beef 356
- Finger bowls 343
- Finger nails, clean . . . 473, 474
- Fingers, foods eaten from 134, 140
- Fire box 182
- Firebuilding 182, 187
at a picnic 542, 546
- Fireless cooker 51, 56
electric 57, 181
for cooking cereals and
dried legumes . . . 57, 259
points in using 57
- Fires at picnic, putting out 544, 546
- First course, when placed on
table 114
- Fish
and milk 404
bones 401
buying 402
cleaning 404
composition 402, 403
cost 403
dry or lean 402, 410
fat 403, 410
foods to use with 404
fresh-water 402, 410
frozen 404
keeping of 401
salad (*recipe*) 293
salt-water 402, 410
steak, baked (*recipe*) . . . 406
storing in refrigerator . . 404
utensils for cooking . . . 405
- Flame, blue 178
- Flank
beef 352, 357, 361, 372
lamb 384, 300
veal 381, 390
- Flavoring
for left-over meat 378
in veal 382
materials in tough cuts of
meat 350, 371
- Flies 591
- Floating island (*recipe*) . . . 318
- Floors, kitchen 147, 154
- Flour
all-purpose 88, 428, 549
bread 80, 89, 428, 432, 549
for cake-making 549
Graham 82, 89, 428, 432
kinds 79, 89
measuring 83
pastry 80, 89, 549
patent 82, 89
soft wheat 80, 549
weight of bags 81, 89
whole-wheat or entire-
wheat 82, 89, 428, 432

References are to pages.

Flowers

- arrangement 106, 341
- care in sick room 478
- long-stemmed 479, 480
- short-stemmed 478

Food

- hot, served at a picnic 542, 546
- left on plate 135
- preparation center 143, 154
- quantity of 4, 6
- values, computing, 452, 454, 462, 600
- values, table of 600-609

- Foodstuffs** 60, 63
- in breakfast cereals 61, 63
- in luncheon 333
- measured by calories 344
- not measured by calories 344
- oxidation of 328, 330, 343
- use in body 62, 584-586

Fork

- how held 129
- oyster 455
- place on table 109, 115
- salad, where placed 337, 338
- used with knife 129, 139
- used without knife 130, 139

- Fowl** 410
- cutting into pieces 398
- fricasseed (*recipe*) 400
- oven-cooked (*recipe*) 400
- stewed (*recipe*) 400

- French dressing (*recipe*)** 290

Fresh air

- for baby 492, 496
- need of 468, 472, 474

- Fried foods, objection to** 296

- Frosting** 559
- cocoa (*recipe*) 560
- 7-minute (*recipe*) 560
- tinting 582
- uncooked (*recipe*) 560

- Fruit** 38
- buying 8-18

- compotes (*recipe*) 26
- cooking to preserve flavor 29
- cooking to retain shape 24
- cup or cocktail (*recipe*) 313
- cup, serving 340
- dishes for serving 112
- dried 41, 47
- cooking 46, 47
- cost of 41
- with cereals 53
- wrinkled skins of 40

- for baby and child under six 501-506, 508
- for box lunch 227, 229, 231
- for breakfast, how served 118, 124

- for school lunch 223, 232
- for the sick 483, 485
- gelatin (*recipe*) 442
- paring and peeling 22, 513
- punch (*recipe*) 578
- salad dressing (*recipe*) 295
- salads, suggestion for 294
- selection for canning 513
- serving 14
- shortcake (*recipe*) 294
- underripe 21, 29, 513
- used as vegetable 270, 284
- washing 12, 13, 18, 513
- wholesome dessert 231, 312
- with meat 386

- Frying, in deep fat** 296, 297

- Fuels** 182, 187

- Furnace, hot-air** 185, 186

- Furniture in dining room,**
arrangement of 204, 205

- Garnishes** 313, 334

- Gas burner** 177, 178, 179

- Gasoline stoves** 180

- Gelatin** 438, 446
- acidulated 439, 446
- amount to use 438, 446
- buying 438

References are to pages.

- Gelatin**, dessert 441
 dissolving 437
 effect of cold water on 436, 446
 effect of hot water on 436, 446
 food value of 438, 446
 formed from connective tissue 363
 fruit desserts (*recipe*) . . . 442
 fruit juice in 439
 in meat broth . . . 375, 376, 390
 kinds 438
 whipped (*recipe*) 442
 why serve cold 437
- Germ** (or embryo) of grains 50, 54, 81
- Giblets** 396, 398, 410
- Gingerbread** (*recipe*) 321
- Glass**
 baking dishes . . . 27, 29, 590
 lead 211, 218
 lime 211, 218
 special, for ultra-violet rays 493
 utensils 405, 590
- Glassware**, shaping 211, 218
- Glaze on dishes** 210
- Gluten** 428
- Goiter** 268
- Gold**
 bands on dishes 209
 matt and bright 209
- Golden salad** (*recipe*) 293
- Gram** 453
- Grapefruit**
 buying 8, 17
 serving 15
- Grapes**
 serving 14, 17
 washing 14, 18
- Gravy**
 beef (*recipe*) 367, 369
 chicken (*recipe*) 398
 turkey (*recipe*) 308
- Gruels, cereal** (*recipe*) . . . 482, 483
- Guest of honor** 128
- Hair**, washing 473-475
- Ham** 387, 391
- Hands**, clean 473, 474
- Health**
 chart 475
 effect of food on . . . 197, 222
 food and clothes 197
 game, rules 466
 laying foundation for . . . 489
 value of 465
- Height**
 effect of food on 5
 of cooking surface . . . 176, 186
 of work surface 149, 154
- Height-weight-age table** 597-599
- Hemoglobin**, lack of 388
- High altitude**, canning in . . . 527
- Hock** (cut of pork) 387, 391
- Home making** xvii
 helping in . . . 19, 107, 116-119, 122, 124, 125, 127, 137, 138, 142, 145, 146, 158, 160, 167, 170, 190-192, 202, 204, 205, 219, 271, 286, 300, 326, 346, 350, 373, 422, 433, 447, 464, 477-481, 488, 489, 490, 497, 507, 509, 583
 why study xvi
- Home membership**, worthy xv, 8, 118, 137-139, 142, 145, 146, 158, 160, 167, 190-192, 202, 204, 205, 219, 477-481, 489, 490, 495, 496, 507
- Home**, preparing food in . . 30, 48, 64, 73, 78, 91, 103, 247, 263, 271, 286, 300, 310, 326, 346, 350, 374, 391, 422, 433, 447, 509, 521, 531, 540, 563, 572
- Honeydew melon** 11
- Ice**
 and salt for freezing . . 568, 571
 for freezing, preparing . . 567
 water (*recipe*) 570

References are to pages.

- Ice cream**
 buying 564
 chocolate (*recipe*) 569
 fruit (*recipe*) 569, 570
 graham cracker (*recipe*) 572
 made in mechanical refriger-
 erator 571, 572
 vanilla (*recipe*) 569, 572
- Ice-cream freezer**
 care of 568
 crank 565
 parts 566
 use of 566
- Insects**
 household 591-593
 in flour 81
- Insulation in refrigerators** 171
- Intestines, cleaned by cellulose** 35
- Introductions**
 how to make 574, 583
 when to rise 575, 583
 when to shake hands 575, 583
- Invalids, food for** 481, 487
- Iodine (in foods)** 268
 in oysters 408
 in vegetables 269
 in water supply 269
 test for starch 55
- Iodized salt** 269
- Iron**
 cast, utensils 588
 galvanized, utensils 589
 in liver 388
 in oysters 408
 pans 27, 588, 589
 percentages in foods of the
 amount needed daily 454,
 600-609
 requirement 453
 Russian, utensils 588
 with calcium and phos-
 phorus in luncheon 332
- Iron-rich foods** 267
- Jams (*recipe*)** 533, 539
- Jars for canning**
 selection 514
 preparing for canning 515
- Jelly (*recipe*)** 537
 molding solid foods in 440
 steps in making 539
 to remove from molds 440
 what makes fruits 535, 539
- Jelly-making fruits** 536, 539
- Jowl (cut of pork)** 387
- Junket**
 custard (*recipe*) 484
 tablets 254
- Kerosene burner**
 caring for 180, 181
 stoves 180
- Kilowatt hours** 188
- Kindling temperature** 182
- Kitchen**
 efficiency (experiment) 141
 energy-wasting 146
 equipment 144
 floor plans 144, 145, 146, 157
 how made attractive 148, 157
 size 147
 step-saving 145
 utensils, selecting 588-590
- Knife and fork, when not in use** 132, 133, 137
- Knives**
 chopping 248
 fruit 14
 how held and used 131, 139
 position on table 108, 115
 stainless steel 27, 589
- Lamb**
 breast 384, 390
 characteristics 384
 cooking 385
 cuts 384, 390
 leg 334, 390

References are to pages.

- Lamb, roast with pineapple**
 (recipe) 386
 time table for roasting . . . 390
- Leafy vegetables** . . . 270, 434
 green, vitamins in . . . 273
- Leavening agents for quick breads** 309
- Legumes** 259
 dried, how cooked . . . 259
- Lemon jelly (recipe)** . . . 439
- Lemons, selecting** . . . 8, 17
- Lentils** 259
- Lettuce**
 buying 274, 284
 eating 136
 how to dry 288
 value of 271
- Light diet** 484, 487
- Linen**
 Art linen 215, 218
 damask 215, 218
 for dining table . . . 107, 337, 454, 462, 545
 placing on table . . . 105, 108
 sick-room, sterilizing . . 486, 487
 table
 buying 216
 characteristics of . . 215, 218
 removing stains from . . 217
- Linoleum**
 for drainboard covering . . 152
 for floor covering . . . 147
 for table-top covering . . 151
 kinds 148
- Liquid diet** 482, 487
- Litmus paper** 238
- Liver**
 and bacon (recipe) . . . 389
 food value of 388
 loaf (recipe) 389
- Living-dining room** . . . 205, 207
 table 208
- Loin**
 lamb 384, 390
- pork 387, 391
 veal 381, 390
- Lunch, box** 227
 care of box 231, 233
 kinds of box 231, 233
 made interesting 229
 packing 231, 233
 record 234
 score 545
- Luncheon**
 cover 338
 plans 327
 table ready for service . . 341
- Macaroni and cheese (recipe)** . . 256
 food value of 255
- Main dish**
 for breakfast, how served . 120, 124
 for dinner 347-409
 for luncheon . . . 250-261, 280-284, 293, 294
- Manners**
 at a party 573-577
 at a store 40
 at home xvi
 table, at home . . . 126, 127, 139
- Marmalade, orange (recipe)** . . 535
- Marmalades, how made** . . . 534, 539
- Marshmallows, roasting at a picnic** 543
- Mayonnaise (recipe)** 291
 to remedy curdled . . . 292
- Meal, corn** 305, 306
 cream 306
- Meals**
 cost of 450, 461
 hints for getting 336
- Measurement equivalents** . . 597
- Measures of food** 451, 587
- Measuring**
 cups 23, 42
 foods 23, 42
 spoons 23

References are to pages.

- Meat** 349, 371
 barbecued 370
 bone of 352, 371
 cakes, chopped (*recipe*) . . 365
 carving 457, 462
 chopping 365, 371
 cooked in water, nourish-
 ment 376, 389
 cooked, materials lacking
 in 378, 390
 extenders 379
 for luncheon 250
 for soup 375
 for the sick 485
 grain of 351, 371
 how cared for 358
 inspected 351
 juices, how to keep . . . 363
 lean, structure of . . . 362
 less tender cuts . . . 365, 372
 loaf (*recipe*) 366
 methods of cooking . . . 371
 patties (*recipe*) 378
 quantity to eat 347
 roasting 370
 searing 364
 soufflé (*recipe*) 252
 stock (*recipe*) 376
 substitutes 250, 261
 for school lunch . . . 223, 232
 proteins in 251
 tender cuts 369, 372
 why liked 349
 washing 359
 why eat meat sparingly . . 348
 tough cuts 350
- Medicine**, how to give . . . 480, 487
- Melons**, Rocky Ford 11
- Menus** 115
 breakfast 3, 4, 104
 dinner 449
 luncheon 330
 testing 335, 344
 writing 104
- Meringue** (*recipe*) 318, 324
- Meter**
 electric 188
 gas 188
- Milk** 70, 72
 and fish 404
 babies', tasting 500
 calcium in 267
 certified 499, 508
 daily amount needed . . . 65, 70, 72
 effect of, on dogs 68
 for box lunch 227
 for breakfast 65
 for child under six . . . 503-506, 508
 for school lunch 223, 232
 for the sick 482
 fruit, and vegetables in
 daily diet 224
 how to prepare for feeding . 500
 kind used in cheese making . 254
 modified 499, 508
 mother's 498, 508
 pasteurized 499, 508
 skim 69
 testing temperature of . . 500, 501
 top 69
 using with fruit 570
 whole 69
 why use with meat . . . 379, 390
- Mineral matter** 34, 38
 in foods (see *ash*)
- Minute steaks** 354, 355, 372
- Mixer of gas burner** 178
- Molasses**, use in leavening . . 320
- Molds** 512, 520
- Moths** 592, 593
- Motions in work** 193, 201
- Mousse** 567
- Muffins**
 bran (*recipe*) 91
 Graham or whole-wheat
 (*recipe*) 88
 how made porous 78
 pans, filling 85

References are to pages.

- Muffins**, standard (*recipe*) . . . 88
 steps in mixing 84
Muscle fibers 362
Muskmelons
 buying 11, 18
 serving 17
Mutton
 cooking 385
 cuts of 385
 fell of 386
Napkins, table
 buying 217
 folding 341, 455
 how used 128, 139
 size of 217
 where placed . . . 110, 115, 339
Navel
 cut of beef 352, 358, 372
 oranges 8
Neck, beef 352, 358, 372, 376
Nipple of feeding bottle, care
 of 500
Noodles with cheese (*recipe*) . . . 257
Nut bread (*recipe*) 308
 making 307
Nutrition, A B C of 35
Nuts, how salted 580
Oil
 light paraffin 180, 187
 salad 289, 290
 vegetable 289
Oiling stove 179, 187
Omelet
 plain (*recipe*) 98
 puffy (*recipe*) 98
Onions (*recipe*) 420
 odor 420
 washing 279
Open-stock dishes 211
Orange juice 9, 34
Oranges
 Florida 8
 navel 8
 selecting 8, 17
 serving 14, 15
 Valencia 8
Oven
 heat regulator . . . 86, 176, 186
 insulated 178, 186
 lining 176, 180, 186
 of coal range 185
 testing for cake baking . . . 555
 testing temperature . . . 85, 86
 thermometer 86
Overglaze on dishes 210
Oyster stew 409
Oysters 406
 buying 407
 cleaning 408
 composition 408
 cooking 408
 federal inspection 407
 fried (*recipe*) 409
 scalloped (*recipe*) 409
 selecting 407
 time of frying 296
Pacifier, harm in using 491
Palatability of meal 334, 344
Pan-broiling 370, 371
Pans
 cake 550
 for cooking fruit 27
 for sponge cake 550
 greasing 85
 material 554, 588-590
 size 554
 tube 550
Paper dishes and napkins 541, 546
Paraffin, sealing with 534, 539
Party
 arriving at 574
 courtesy 576
 invitations 573, 583
 leaving 576
 refreshments 577-582

References are to pages.

- Pastry**
 good qualities of . . . 321, 325
 how placed in pan . . . 323
 method of making . . . 322
 plain (*recipe*) . . . 322
 temperature for baking . . 324
- Peaches**
 buying 44, 47
 dried, cooking 46
 serving 14, 17
- Peanuts**
 composition of 248
 salted (*recipe*) 580
- Pears, serving** 14, 17
- Peas**
 buying 277, 285
 dried 259
- Pectin**
 a carbohydrate . . . 536, 539
 commercial 536, 539
 test for 536
- Pests, household, destroy-**
 ing 591-593
- Phosphorus**
 percentages in foods of
 the amount needed
 daily 454, 600-609
 requirement 453
- Phosphorus-rich foods** 268, 269
- Pickles** 538
- Picnic**
 aluminum utensils for . . 542
 class 545
 firebuilding 542, 546
 foods 542-544
 grounds, care of . . . 544, 546
 shoulder (cut of pork) 387, 391
- Pie**
 butterscotch (*recipe*) . . 324
 one-crust 323
 score card 325
 sweet potato (*recipe*) . . 325
- Pineapple-carrot salad**
 (*recipe*) 441
- Pineapples**
 selecting 10, 18
 spiced (*recipe*) 539
- Place cards** 128
- Plan, floor**
 directions for drawing . . 157
 of dining room 204, 205
 of kitchen 144, 145, 146
- Plant, parts used as food** . . 269
- Plates**
 breakfast or luncheon . . 112
 service 137
- Plums, serving** 14
- Poisons**
 caused by bacteria . . . 524
 on fruits 13
- Pop-corn balls (*recipe*)** . . 578
- Pork**
 chops, baked (*recipe*) . . 388
 cooking 386
 cuts 386, 387, 391
 time table for roasting . . 390
- Porterhouse** 352, 355, 369, 370,
 372
- Potato volcano (*recipe*)** . . 257
- Potatoes**
 baked (*recipe*) 415
 buying 276, 277, 285
 composition of 266
 cooking at a picnic . . . 543
 in salad (*recipe*) 294
 scalloped (*recipe*) 282
 starch in 266
 stewed (*recipe*) 418
 stuffed (*recipe*) 415
 sweet (*recipes*) 282, 415
- Pot-roasting** 368, 372
- Poultry** 395, 409
- Preservation of foods** . . 512, 520
- Preserves** 532, 533, 539
- Preserving fruit by cooking** . 22
- Pressure cooker, steam** 414, 524
 time table for canning . . 528
 use, canning vegetables 524, 531

References are to pages.

- Protein**
 excessive eating of . . . 348
 in foods 59, 60, 61, 63, 70, 72,
 99, 248, 256, 260-262, 266,
 284, 289, 333, 349, 371,
 402, 403, 408
 quality of 58, 72, 99, 251, 261,
 266, 331, 401, 438, 453
- Prunes**
 buying 43, 47
 cooking 46
- Punch, fruit (*recipe*)** . . . 578
- Putrefaction of meat and**
 eggs 348
- Quart measure** 23
- Raisins, buying** 44, 47
- Ralston (*recipe*)** 52
- Range, gas, buying** . . . 176, 186
- Rats, white**
 effect of calcium on . . . 66
 effect of food on . . . 2, 221, 222
- Recipes**
 list 610-614
 suggestions for arranging . 449
- References**
 pupils' 594
 teachers' 596
- Refreshments, party** . . . 577-582
- Refrigerator**
 buying 171
 care of 174, 186
 circulation of air in 174, 175, 186
 coldest spot in . . . 173, 174
 efficient 173
 iced 173
 iceless 174
 lining 172, 186
 position 144
 size of 173
 walls 172, 186
- Relish, tomato and celery**
 (*recipe*) 436
- Rennet Custard** 484
- Rennet, rennin** 254
- Rib**
 lamb 384, 390
 roast, rolled 357
 standing 356
 veal 381, 390
- Rice**
 brown or natural . . . 53, 63
 boiled (*recipe*) 55
 croquettes (*recipe*) . . . 298
 double-boiler-cooked
 (*recipe*) 54
 serving of 56
 white or polished . . . 53, 63
 with cheese (*recipe*) . . . 257
- Rickets, prevention of** . . . 494
- Roaches** 592
- Rolled oats (*recipe*)** . . . 52
- Rolls**
 Clover Leaf (*recipe*) . . . 432
 Parker House (*recipe*) . . 432
 potato yeast (*recipe*) . . . 431
- Roughage** . . . 35, 38, 333, 344
- Round** . . . 352, 357, 359, 367, 372
- Rubber rings for canning,**
 selection 514
- Rump**
 of beef 352, 357, 358, 367,
 372
 of veal 381, 390
- Russian style of table service** 339,
 344, 457
- Salad**
 as dessert 294, 299
 as main dish 287, 299
 for school lunch 223
 gelatin 440
 how made attractive . 287, 299
 how often eaten . . . 287, 435
 serving and eating . . . 342
 where placed 338
 why used for dinner . . . 434

References are to pages.

- Salad dressing**
 classes of 299
 cooked (*recipe*) 292
 serving 342
 when to add 288, 299
- Salt**
 use in freezing 565
 use in preserving 538, 539
- Sandwich fillings** 230
- Sandwiches**
 eating 134, 140
 for box lunch 228
 for school lunch 223
 hot cheese, toasting 543
 kinds 230, 231
 making 228, 232
- Sauce**
 fruit 22
 hard (*recipe*) 313
 how to make smooth 236, 245
 mock hollandaise (*recipe*) 406
 pineapple-mint (*recipe*) 386
 white (*recipe*) 237, 246
- Scalding**
 can of freezer 567, 571
 dishes 162, 169
 fruit jars 515
- School cafeteria, selecting**
 food at 222
- Searing meat** 364, 371
- Seasonable foods** 333
- Seating oneself at the table** 127, 139
- Seeds, removing from mouth** 136
- Service**
 plates 137
 wagon 119, 154, 156
- Serving**
 compromise style of 339
 family or English style of 118, 123, 339, 344
 foods to sick person 485, 487
 meal, coöperation of family 118
 meal gracefully 117
 rules for 124
- Russian style of 339, 344, 457
 with and without maid 120, 124
- Shank**
 beef 352, 358, 372, 376
 fore, veal 381, 390
- Shellfish** 406, 410
- Sherbet**
 lemon-milk (*recipe*) 571
 orange-lemon-milk (*recipe*) 571
- Shortcake**
 fruit (*recipe*) 319
 peach (*recipe*) 320
 strawberry (*recipe*) 320
- Shortening** 319
- Shoulder**
 lamb 384, 390
 veal 381, 390
- Shoulder-round steak** 360, 372
- Sick**
 foods served to 485, 487
 selecting food for 481, 487
- Sick room**
 fresh air in 480, 487
 light in 479, 486
 neatness of 480, 487
 speaking cheerfully in 477
 sterilizing dishes of 486, 487
 temperature of 480, 486
- Silence cloth** 107, 115
- Silver**
 cleaning 213, 218
 flat 212, 218
 inlaid 212, 218
 plated 213, 218
 sterling 212, 218
- Silverware, kinds** 212, 218
- Sink, cleaning** 167, 169
- Sirloin of beef** 352, 353, 354, 370, 372
- Sirups for canning** 515
- Skins of foods, disposing of** 136
- Skirt steak** 358, 361, 372
- Sleep**
 room for baby's 492

References are to pages.

- Sleep, suggestions . . . 468, 473, 475
 time for baby's . . . 491, 496
 Snow pudding (*recipe*) . . . 442, 446
 Soft diet 483, 487
 Solution, water 32, 37
 Soufflé 251
 cheese (*recipe*) 252
 meat (*recipe*) 252
 plain (*recipe*) 252
 spinach (*recipe*) 284
 Soup
 cream, ingredients 235-237, 245
 cream of pea (*recipe*) . . . 238
 cream of tomato (*recipe*) 238, 239
 cream of spinach (*recipe*) . 247
 for school lunch 222, 224, 232
 for the sick 482
 meat stock (*recipe*) 376
 peanut-tomato (*recipe*) . . . 249
 serving 340
 Southern bean (*recipe*) . . . 249
 spoon, how used . . . 133, 134, 140
 sticks 241
 vegetable (*recipe*) 377
 why use for luncheon . . . 235
 Sour milk
 advantage in quick breads 306
 substituted for sweet 305, 309
 use in quick breads . . . 303, 309
 Spareribs 387, 391
 Spending money 8, 194
 Spices, use in preserving 538, 539
 Spinach (*recipe*) 419
 and carrots, baked (*recipe*) 283
 buying 274, 284
 chopping 248
 food value of 271
 iron-rich food 267
 soufflé (*recipe*) 283
 washing 279
 Spoiling of foods, causes . 511, 520
 Sponge, yeast 431, 433
 Spoons
 how used 133, 139
 orange 15
 soup, where placed . . . 337, 338
 Spraying fruit, poisonous substances used for . . . 13
 Squash, winter, baked (*recipe*) 416
 Stains, removing from table
 linen 217
 Starch
 in cereals 58, 63
 in vegetables 266
 reason for use in baking
 powder 303
 stiffening of 58
 test 55
 Starchy vegetables 270, 284
 Steak
 broiled (*recipe*) 369
 pan-broiled (*recipe*) 370
 Steamed breads 308
 Steamer 413, 414
 Steel utensils 27, 589
 Sterilizing 508
 Stores, clean 39
 Stove
 electric 181
 gas, care of 179, 186
 height of 150
 oiling 179, 187
 coal 183, 184, 186
 Strawberries, selecting . . . 9, 18
 Study, plans for 190
 Sucking thumb, how to prevent 491
 Sugar
 adding to fruit 28
 amount used in frozen desserts 569
 and breakfast cereals . . . 53
 caramelizing 443
 confectioner's 559
 for cake making 549
 4X 559
 in fruit 33
 solution 32, 37

References are to pages.

- Sugar**, use in preserving foods . . . 532
Sunlight, effect on growth . . . 469
Sunshine
 bottled 494
 for baby 493, 496
 need of 468
Supper 328
Sweets, when to eat . . . 224, 311
- Table**
 breakfast 108
 dinner, setting 454
 living-dining room 208
 padding 107, 115
 tops, material 151, 154
T-bone steak . . . 354, 355, 372
- Tea**
 black 76
 green 76
 wagon 154, 155
- Teeth**
 care of 467, 473, 475
 nourishing food for 467
- Tenderloin muscle** 354
- Tests**
 best-answer 72, 187, 246, 299,
 391, 463, 509, 540
 completion 38, 233, 262, 326,
 447, 474, 546
 essay-type 6, 47, 90, 115, 124,
 124, 140, 157, 169, 201, 233,
 262, 309, 345, 422, 433, 497,
 508, 571, 583
 short-answer 29, 285, 373
 true-false 19, 63, 102, 218, 285,
 410, 487, 531, 562
Thermometer, roast meat . . . 364
Thousand Island dressing . . . 292
- Time**
 budget 190, 191, 200
 value in school 180
- Tin utensils** 589
- Toast**
 buttered 78
 changes in, during heating . . . 77,
 89
 for baby and child under
 six 502-506, 508
 serving 78
 softened (*recipe*) 483
- Tomato and celery relish**
 (*recipe*) 436
- Tomato jelly salad** (*recipe*) . . . 441
- Tomatoes**
 baked, on toast (*recipe*) . . . 284
 buying 275, 285
 effect on milk 238
 value of 271
 why use in salads 435
- Tough cuts of meat**
 nourishment in 350
 taste of 350, 371
- Tough meat**, how to make
 tender 363
- Toys for baby** 490
- Tray**, use of 122, 124
- Tumblers**
 filling and refilling 123
 placing on table 109, 115
- Turkey**
 baking or roasting 397
 carving 461, 462, 463
 dressing 394
 stuffing (*recipe*) 396
 time table for roasting 410
 trussing 397
- Typhoid fever** 544
- Ultra-violet rays** 493, 496
- Underglaze on dishes** 210
- Union cloth** 215
- Utensils**
 selecting 588-590
 where placed 147
- Veal**
 birds (*recipe*) 383
 breast 381, 390

References are to pages.

- Veal**, characteristics . . . 380
 cooking . . . 382
 cutlets . . . 380, 390
 cuts . . . 380, 381, 390
 leg . . . 380, 381, 390
 shank . . . 376
 time table for "roast-
 ing" . . . 390
- Vegetable soup** (*recipe*) . . 377
- Vegetables**
 acid, canning, time table 524
 amount grown in United
 States . . . 264
 baking . . . 414, 421
 buying . . . 273, 284
 canned . . . 529
 classification . . . 269
 cleaning . . . 279
 cooking in water . . 416, 421
 effect on complexion . . 265
 flavor of . . . 270
 for baby and child under
 six . . . 501-506, 508
 for the sick . . . 483, 485
 juicy . . . 270, 284
 kinds to eat daily . . 270
 leafy, vitamins in . . 434
 loss in cooking in water . 412
 non-acid . . . 523, 531
 canning, time table . . 528
 overcooking . . . 417
 paring . . . 279
 preparing for canning . . 525
 purée . . . 237, 245
 raw, why eat . . . 434
 root, cleaning . . . 279
 scalloped . . . 280, 281
 serving . . . 341
 steaming . . . 413, 421
 storing . . . 278
 time table for cooking in
 water . . . 418
 value in diet 223, 265, 266, 284
 why eat with meat . . 378
- Vinegar**, use in preserving 538, 539
- Vitamin A**
 foods rich in . . . 271, 272
 green leaves rich in . . . 273
 in liver . . . 388
- Vitamins A, B, C, and G**
 distribution in foods . 602-609
 how quality is indicated . 36
 importance of . . . 36, 332
 in cod-liver oil . . . 494
 in foods 35, 36, 37, 41, 62, 63, 70,
 72, 99, 248, 256, 260-262,
 266, 272-273, 284, 289, 330,
 332, 349, 371, 402, 403, 408,
 410, 440, 452, 494, 530, 570
 in fruits . . . 37
 kinds . . . 35, 584-586
 lacking in meat . . . 378, 390
 not measured by calories . 344
 of luncheon . . . 330
 use in the body . . . 34
- Vitamin C**
 destroyed by cooking . . 272
 foods rich in . . . 273
- Walls**
 dining room . . . 204
 kitchen . . . 147, 154
- Water**
 boiled for baby . . . 494, 496
 boiling . . . 23, 29
 drinking at a picnic . 543, 546
 glass, packing eggs in . . 95
 hot or cold for soaking
 dishes . . . 164, 168
 in foods 28, 31, 40, 59, 60, 61,
 63, 70, 72, 93, 99, 248, 255,
 256, 260-262, 266, 284, 289,
 333, 349, 371, 402-403, 408,
 410
 need of . . 470, 473, 474, 475
 quantity to drink . . . 348
 when and how to give to
 baby . . . 494

References are to pages.

- | | | | |
|--|---------------|---|--------------|
| Water, when poured | 114 | Wooden utensils | 590 |
| Waterless cooking | 420, 422 | Work surfaces, height of | 149, 154 |
| Weevils in flour | 81 | | |
| Weight affected by food | 5 | Yams, candied (<i>recipe</i>) | 282 |
| Weight-Height-Age Tables | 597-599 | Yeast | |
| Weights of foods | 451, 587 | cakes, freshness | 427 |
| Welsh rabbit (<i>recipe</i>) | 257 | compressed | 425, 432 |
| Wheat grain | 59 | dough, sour | 427 |
| parts of | 50 | dry | 431, 432 |
| Wheatena (<i>recipe</i>) | 52 | how it leavens | 525 |
| Whey of milk | 252 | plants, growth of | 426, 432 |
| White sauce | 237, 246 | wild | 512, 520 |
| Windows in kitchen | 148, 149, 159 | Zwieback for baby and child | |
| Wire utensils | 587 | under six | 502-506, 508 |



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